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Vol. LIV.] [Part I.

JOURNAL

OF THE ROYAL STATISTICAL SOCIETY,

MARCH, 1891.

STATISTICS *of the* DEFENCE EXPENDITURE *of the* CHIEF MILITARY *and* NAVAL POWERS.

By the RIGHT HON. SIR CHARLES W. DILKE, BART.

[Read before the Royal Statistical Society, 16th December, 1890.
The President, Dr. F. J. MOUAT, F.R.C.S., LL.D., in the Chair.]

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THE enormous sums spent by the chief military and naval powers on national defence seem worthy of statistical examination, but some of the figures given upon the subject in books of reference are incorrect, and comparison is, for various reasons, far from easy. In an able article upon comparative naval expenditure which appeared in the "Times" of the 7th October last, the "Times'" writer stated the annual cost of the German army as 18,345,258*l.*, in place of 28,000,000*l.* sterling at the least, and 33,500,000*l.* in the present year. The estimate of the "Times" must have excluded not only the extraordinary expenditure but even the ordinary "expenditure for once," and thus have excluded the whole of the large items for guns, rifles, fortification, and barracks. In the case of Russia, which keeps, of all the powers, by far the largest army with the colours, and which has also a considerable marine, accurate budget figures are difficult to obtain, and all the books of reference are wrong. In the case of the United Kingdom, the happy absence of a conscription swells our financial accounts, and prevents close comparison with other powers. On the other hand, it must be remembered that our Volunteers, who form, as regards Great Britain, the larger portion of our nominal force, receive no pay, while the Militia serve only for a short part of the year, and are not highly paid. The charges which are much affected by the absence of a conscription are only those, paid by us, which concern that Regular force at home that turns out with difficulty one Army Corps, and those, paid by India, which affect her army, able to place in the field upon the frontier two Army Corps. Three Army Corps in six weeks, as against twenty Army Corps in five days for France or Germany, is what we have to show as the net produce of our fully paid non-conscript Regular force. Foreign powers such as the five great powers of the continent, have, moreover, to heavily pay a portion of their force. The French conscripts, for example, serve only for between two and three years, a time too short for the production of an efficient serjeant, capable of preserving discipline in the barrack room and of teaching the recruits their drill. The result is that all the continental powers now pay heavily to keep their seasoned non-commissioned officers, paying in bounty, monthly pay, and deferred pay as well, to a very pretty tune indeed.

In the case of Germany we have to add to the Prussian budget the military budgets of Bavaria, Saxony, and Wurtemberg. In the case of France, as well as in that of Germany, there is confusion introduced by the habit of counting as "extraordinary" what is really ordinary military expenditure. We shall find that the Russians keep up their enormous army, which is half as large again as that of Germany or of France, at an expenditure altogether less than that of either France, Germany, or the British Empire. Russia is said to place in the field at her autumn manœuvres 330,000 men with a sufficient number of field guns, and to practise generals in handling 180,000 in one district and 150,000 in another. The Russian budgets appear to show that this is done with less strain than might have been supposed. France and Germany spend, roughly speaking, on defence, as we shall discover, about the same amount, the one with the other, and the British Empire a vastly larger sum than any other power.

I.—*Army Pay.*

If we come to detail, France spends on army pay about 8 millions sterling, and Germany about 7 millions sterling; but this is almost the only item in which comparison between France and Germany is possible, as their accounts are kept in such different form, that the items are built up of sums which contain the costs of services in hardly any case identical with those comprised under the same name in the other list. Although France spends more than Germany upon pay, captains and officers of higher rank in the German army are much more largely paid than in France; yet life in Germany is perhaps cheaper than life in France. The French captain or major often, and the French lieutenant-colonel generally lives, however, on his pay. A French captain has 12*l.* a month at the least, a major 20*l.* a month, and the latter sum in a small French garrison town means comfort. 3*l.* a month is the price for board, and under 2*l.* for lodging. The French hold, moreover, that poverty is a good school for officers, and that it is better to have a very large force of officers ready against mobilisation, than to have a smaller number more largely paid. When we turn to the British Empire, we find that it is difficult to arrive at the cost of pay as regards our Colonial forces. Counting home pay and Indian pay alone (to the extent of over 8½ millions of tens of rupees in the case of India—of which 5 millions are paid "at home" or paid to white troops—and 7 millions sterling in the case of the United Kingdom, or, let us say, 7 millions sterling in the United Kingdom and 6½ millions sterling in India, or at home on account of India; that is, 13½ millions in all), we find our army pay apparently double that of Germany. But, on the other hand, pay with us includes more than it includes in the German and French estimates, as some pay in them is put down to other votes, especially in the German case.

II.—*Force.*

Our force with the colours is smaller than that of Russia, or Germany, or France, and for war we show for our Indian and United Kingdom budget on mobilisation, a nominal force—(purely nominal, I regret to say)—of 763,000 men, if we include volunteers (or about 850,000 with the colonial forces), as against a trained and organised force of over 2 million men on the twenty-first day of mobilisation in the case of Germany or of France. The nominal force of 763,000 men for war in the event of mobilisation, which is shown by the British and Indian army estimates is, in part, I fear, a sham. There is something disingenuous in the manner in which the War Office adds these items together on p. 7 of our Army Estimates, in the hope that the public will make no deductions for want of quality, and, assuming that one Briton is equal to any two foreigners, be thankful that we have so many persons in uniform and with rifles. The total is made up of 137,000 excellent regular troops on the home establishment, presenting however the defect of being weak in the costly arm of horse and field artillery ready for work; 50,000 to 55,000 1st class army reserve, useful, but not periodically drilled as is the reserve of every continental army; 2,000 2nd class army reserve, hardly worth counting; 113,000 militia; 3,000 Channel Islands militia (but the Channel Islands are not, it should be observed, now in a condition of defence against a French attack); about 1,000 Malta and St. Helena militia; 11,000 yeomanry; 224,000 volunteers; 74,000 regulars in India, by far our finest force, and probably the best small army in the world; 68,000 good native troops in India; 56,000 bad native troops; and 21,000 odds and ends. The computation, it will be seen, is highly artificial. It excludes, for example, the Royal Irish Constabulary and drilled Indian native police, who, for some purposes, are soldiers. It includes some of those regiments of Indian infantry which from time to time are being disbanded as worthless. It includes the St. Helena militia! It excludes the 36,000 Canadian active militia, the 40,000 excellent troops of Australia and New Zealand, and the Cape mounted rifles, and other South African and Canadian forces of the Crown paid from colonial budgets. When we talk of 2 million active German troops, or 2 million active French troops, for the field army, we mean something pretty much "the same all "through." When we count up our nominal force 763,000 troops borne on British or Indian estimates, or 850,000 men serving the Queen Empress as "land forces" in various parts of the world, we include the finest troops in the world, such as our foreign service British regulars, and our Indian native cavalry, and at the same time include men who would not be shown at all on the army lists or military budgets of other powers. Our force is also extraordinarily weak in horse and field artillery: against the from 2,000 to 4,000 guns of the other powers we can show only nominally about 600 guns, or about 320 guns in the event of war, for on the outbreak of serious war, a large portion of our artillery is intended, oddly enough, to disappear. Roumania and Switzerland can in practice each of them put into the field about as may guns as can the British Empire. The Germans added to their artillery on 1st October last almost as many guns as we have in the whole world, and now possess 47 batteries of horse artillery, of which we have little left, and 387 batteries of field artillery. The French have about the same.

III.—*Victuals.*

To pass away from pay and number of men or guns, and continue a comparison between the various military budgets, victuals in the case of Germany are returned in such a form as to include forage. In the case of France rather over 2 millions sterling is spent on victuals as against rather over 3 millions sterling in our own case, without counting our colonial forces. Our own expenditure upon military food appears to be a little under 1,500,000*l.* in the accounts of the United Kingdom, and a little over 1,500,000*l.* in the accounts of India.

The expenditure on pay is, as General Brackenbury has shown, largely affected by the question of conscription, and that on victuals slightly so affected.

IV.—*Forage.*

Our expenditure upon forage is extraordinarily less than that of France, on account of the small number of horses that we keep up, and also because the forage of the native cavalry regiments of India is provided on a different system.

V.—*Remount.*

Our expenditure upon remounts is small as compared with the remount expenditure of France or Germany, for the same reason of paucity of our cavalry, or rather of our horses—only 12,000 horses to 19,000 cavalry men in India and at home together! British cavalry are a costly luxury, and a terrible drain upon Indian finance, but their cost is partly caused by division into a great number of extraordinarily weak regiments, and partly by gaudy uniforms, worse than useless, and now being dropped by foreign military powers. These latter are thought necessary with us in order to attract men, but a serviceable uniform may be neat, as witness that of our tars. The French cavalry under the Empire wore a great number of different uniforms, some of them (such as those of the guides, and that of the lancers of the guard) of a popinjay description. They now have virtually but two uniforms, and these two both plain, and almost alike.

VI.—*French Expenditure on Forage.*

France spends no less a sum than 3 millions sterling in the present year on forage. This enormous expenditure on the part of France is in part the result of a change of system. Up till lately the French army was supplied with forage by contractors who were paid only on that which was delivered, although compelled to keep in store a large stock ready against a rapid mobilization. The French Government are now abolishing forage contracts, and they are to some extent buying out the contractors, and taking over the stores.

VII.—*Clothing.*

France and Germany are spending each this year a million more on clothing than is usual, because the new military laws greatly increase the territorial troops, and for these increased forces uniforms are beginning to be supplied. Germany and France spend about 2,300,000*l.* sterling this year on clothing. We spend on clothing in the United Kingdom alone about 840,000*l.*, and the volunteers are not clothed out of this sum. But, on the other hand, a large portion of the Indian army is clothed from home, so that comparison is not possible.

VIII.—*Comparison of Detail difficult.*

Generally speaking it will be seen that comparison, except of totals, is out of the question, as the accounts of the different powers are not kept in such a form as to make comparison in detail possible. For example, in the comparison between Germany and France, the figures for transport in Germany include ammunition columns for the infantry, ambulances, and a large number of other services which in France are classed either under regimental expenses or under special heads.

IX.—*Pensions.*

English and Indian expenditure on pensions is far heavier than the expenditure on pensions of other countries; and while our expenditure on pay is, as has been seen, also vastly greater than that abroad, it is, I fear the case, that a portion of the purchase system, the abolition of which was the ground for an increase of pay and pensions, has crept in again in the form of "purses."

X.—*Repeating Rifles.*

There is one costly article in which comparison between England and France is possible. The excellent new French military rifle costs about 50 frs., though produced in a protectionist country, in which prices of metals and woods are higher than in England. The new British rifle, which is not a better weapon, costs at present 5*l.* 10*s.* The cost of our new weapon is one of the two grounds on which the Government of India have hesitated to buy the rifle, the other being that no proper ammunition for it as yet exists.

XI.—*Totals.*

The total expenditure upon the army, out of taxes, in the year, in the case of the United Kingdom, was last year 16½ millions, and in India the same; or 33 millions sterling (34 millions in the present year), besides the expenditure out of loans and that of the self-governing colonies, for the armies of the British Empire. Canada keeps up an organised militia of 36,000 men, at a cost of rather over a quarter of a million sterling in the year, but the Australasian colonies provide vastly more efficiently for their defence, keep up a larger force, and expend in the year among them upon defence almost a million sterling. The tiny little colony of Victoria alone spends almost half as much again as the Canadian Dominion, although not exposed, such is her geographical position, to serious attack. On the whole the colonies spend for themselves about 1,500,000*l.* a year for army purposes, in addition to the contributions made by some of them towards the Imperial forces, and towards marine defence. While the armies of the British Empire cost about 35½ millions sterling a year in addition to the money raised from loans, the German army costs about 33½ millions sterling in the year in all, and the French army, with pensions, about the same. Germany, however, is at present manufacturing new rifles and new powder, whereas France has finished her new rifles and her stores of powder for the present, and the normal expenditure of France and Germany upon army may be looked upon as about the same.

XII.—*Alleged Waste in France.*

It must not be supposed that there is no waste in the case of France or Germany. There may be little waste in the German army; but as regards France a highly competent authority, the author of the anonymous book, "L'Armée française et son Budget "en 1890," has computed, and has given facts to prove the truth of his statement, that the extraordinary budget might be put an end to, and over 2 millions sterling a year saved upon the ordinary budget. Some may object that Germany spends normally as much as France spends, is a saving country, and puts in the field in the event of war no larger force. But, on the other hand, there is reason to suppose that the French do not have so large a force permanently with the colours as their figures show, and that in the event of war their regiments would be more largely swelled by reserve men not equally well trained as the reserve of Germans. Each of these two powers, in other words, would have in the field on the twenty-first day of mobilisation, over 2 millions of men, with between 3,000 and 4,000 guns, and with a large garrison and territorial force in reserve, but the French army would be a slightly less thoroughly trained force. Russia, which has a far larger force with the colours in time of peace than either France or Germany, cannot mobilise her reserves with the same rapidity.

XIII.—*Cost and Results among Ourselves.*

While then France and Germany normally spend on army about 31 millions sterling each, for which they can immediately put in the field a mobile trained force of two million men each, furnished with an adequate proportion of artillery, we normally spend on the armies of the British Empire 35½ millions sterling out of taxes, in addition to loan monies, for which we find a nominal war force of 850,000, of various degrees of merit and training, wholly unorganised, and supplied only with the professional artillery needed for a force of about 150,000 men.

XIV.—*Navies.*

On the other hand, as regards navies, we can show a more formidable force than that of France, and one by the side of which the German navy does not as yet exist. I say "as yet," for statistically this is true, but as the first living English authority on the German military system, Mr. Spencer Wilkinson, author of "The Brain of an Army," who is here to-night, will tell you, the Germans mean business with their navy, and have begun, in a business-like manner, at the top, putting at the head of it their best administrators, and working hard and with success to create good officers and good sailors of the fleet. Italy began with the material; Germany with what might, for contrast, be called the spiritual, *i.e.*, with the moral and intellectual portion of a navy. The French spend vastly larger sums upon their navy than do the Germans; the Italian navy, and not the German navy, being the third of the navies of the powers. The French expend over 8 millions sterling a year upon their navy, whereas the German expenditure is only 4½ millions. I may note in passing that the German naval expenditure is altogether understated in our books of reference, which mostly neglect the "extraordinary budget." "Whitaker's Almanack" gives a sum of under 2 millions and a half, or only about half the real cost. I may also note that the French naval expenditure includes their expenditure upon their marine light infantry, who are not employed at sea, but used as a colonial force, and who are really a portion of the French army rather than of the navy.

XV.—*Total Cost of Defence.*

The French spend between 36 and 36½ millions a year upon defence, in addition to a certain proportion of military pensions borne on the civil budget. The Germans are spending in the present year 38 millions upon defence. The Russian expenditure upon the army at the present rate of the rouble is less than 24 millions sterling a year, and the Russian expenditure upon the navy between 4¼ and 4½ millions, and the total Russian expenditure upon defence between 28¼ and 28½ millions.[1]

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[1] The rouble varies much in value. It has even in the present year varied from 25⅜*d.* to 30⅝*d.* As a rule in recent years it may be said to vary from a rate of 8 roubles to a £ sterling, to 10 roubles to a £ sterling. I have taken it at 9 roubles to a £, at which it stood when I made my calculation.

XVI.—*Our own Defence Expenditure.*

Our own expenditure is upon a far larger scale, and puts us altogether before the other powers in the figures of defence expenditure, although our lack of organisation is so complete that we are never prepared for war. We are spending in the present year between $33\frac{1}{3}$ and $33\frac{1}{2}$ millions out of taxes upon defence in the United Kingdom, and, adding what we are spending out of debt, $38\frac{1}{3}$ millions in the United Kingdom. India is spending 17 millions upon defence, to which perhaps an addition ought to be made for a certain amount of railway expenditure, which is in fact, although not nominally, strategic; but even without this addition we come up to $55\frac{1}{3}$ millions, and with nearly 2 millions for the defence expenditure of the colonies, to 57 millions in the year. For this we obtain a fine navy, but no army in the modern sense of the word.

XVII.—"*Extraordinary*" *Expenditure.*

Some of the errors in the usual books of reference, are accounted for by the distinction between ordinary and extraordinary expenditure made in most continental countries. The ordinary army budget of France is about 23 millions sterling, in addition to some military pensions borne on the civil budget, but a large amount of the nominally extraordinary army expenditure of France is also in fact ordinary. It is often called "extraordinary" in reference to the nature not of the charge, but of the fund from which it is to be met. The French extraordinary budget for 1890-91, still contained nearly a million and a half sterling for new rifles, and half a million for stores of ammunition, but the expenditure upon this head will, of course, never wholly cease. Three-quarters of a million sterling are down for carts, and the other extraordinary sums are small, although the total is over 5 millions sterling. Generally speaking it is new fortifications, new guns, new rifles, and new powders, which come into the extraordinary budget of France. Germany has a different system, the ordinary military expenditure is roughly speaking only about half the whole military expenditure, after which there come in the budget two classes of expenditure "for once," or in other words of expenditure not supposed to be recurrent, although a great deal of it as a matter of fact regularly recurs. Bavaria is spending of extraordinary expenditure in the year 1890-91, no less a sum than over three-quarters of a million sterling, upon new artillery and small arms; Saxony over a quarter of a million sterling upon the same; and Wurtemberg in proportion. Prussia alone divides her expenditure "for once" into classes A and B: A, expenditure for once, ordinary; and B, expenditure for once, extraordinary.

By far the largest items are, one of nearly a million sterling extraordinary for clothing and equipping the increased forces lately raised by the new military law; and a sum of nearly 5½ millions sterling extraordinary, for artillery and small arms, and an extraordinary fortification expenditure, chiefly upon fortifications in Alsace, of over 2 millions sterling. As a large portion of the German expenditure upon artillery and arms will not be annual, it may be taken that, although the German army expenditure at the moment exceeds that of France, in the long run that of France is equal to that of Germany. The French accounts are, however, complicated by the fact that a portion of the French army is in Algeria, and another portion in Tonquin, while all the German forces are at home. The normal military expenditure of France and of Germany may be taken, as I have said, at about 31 millions sterling upon each army, and the force kept up for this sum at about the same upon each side. We stand pre-eminent in our war expenditure, an expenditure vastly greater for a less force, but affected by our higher rate of pay and pension consequent upon the non-existence of a conscription.

XVIII.—*Naval Results.*

It is not so easy to estimate the results gained by expenditure as regards navies as it is in the case of armies, but when we consider the naval war material possessed in the shape of ironclads and big guns by the British Empire, France, Italy, Russia, and Germany, there is some reason to suppose that there is not much to choose between the French and ourselves as regards the return for our expenditure. On the other hand the Italian navy seems cheap so far as can be judged by what the Italians have to show. The weak point, however, in the statistics is connected with the wear and tear in the life of ships and in the life of engines on account of sea service; and until lately the Germans and Italians were less at sea than the British or French fleets, and a certain relative cheapness of the German and Italian navies might be accounted for in this way. Lately, however, there seems to have been but little difference in this respect, and the cheapness of the Italian service continues. A critic in the "Times" has ingeniously divided figures of expenditure by tons of sea-going fighting ships in commission, by engine power of the same, and by crews of the same, and has made out that our navy is the cheapest navy in proportion to results, but he does not give the figures of sea-going fighting ships in commission upon which he bases himself, and his English figures of results seem calculated upon a higher proportional scale than his Italian figures. He sets down the Italian sea-going fleet in commission as having between 90,000 and 100,000 tons, and between 100,000 and 110,000 horse power, and between 5,000 and 6,000 men, as compared with over 400,000 tons and horse power and over 28,000 men for Great Britain. But, to make his figures for Great Britain so high, he must, one would think, have brought in elements in the case of the British fleet such as are not included by him upon the Italian side. On the whole, I think, however, that he is so far right that we do not pay extravagantly for our navy in proportion to results, when we compare our expenditure and our results with those of the other great naval powers.

XIX.—*Conclusion.*

We are going beyond the region of statistics, and I will merely say that that enormous expenditure of the British Empire upon its defences, ought at least to lead us to insist upon that defence being afforded to us on land for which we undoubtedly pay.

XX.—*Moral.*

It is perhaps inadmissible here to draw a moral, but I may be permitted to ask my hearers to read for themselves the first section of the German official account of the Franco-German War of 1870, compiled by the historical division of the Great General Staff at Berlin. The moral which its compilers drew from the total failure of the French in 1870 to obtain even a momentary success, with an army of splendid courage and perfect training, was that, whatever the peace expenditure, war cannot be commenced with a fair chance of winning by a nation which waits until war to make her organisation perfect. Germany before 1870 prepared, in time of peace, her corps, her armies, and provided them all with officers for the various commands who knew what their duties would be in war. All countries spending much on their armies now do the same, except the United Kingdom, which stands alone in having still practically little but a regimental system in existence. But, although we are old fashioned, to the point of being utterly unprepared (except in India) for the stress of war, we, nevertheless, spend sums so vast as to stagger and amaze even those French and German critics who ought to be pretty well used, one would think from what we have heard to-night, to large sums for military expenditure. The Prussian official account of the war of 1870, points out how the French suffered by having only such a permanent formation of Army Corps in time of peace, as to give them but five organised forces, of which indeed one was included within one other, so that the number might be said to have been only four: the army at the camp of Châlons; the army of Algeria; the army of Lyons; and the Imperial Guard and army of

Paris, the larger organisation of the army of Paris including the smaller organisation of the Imperial Guard. We, in the United Kingdom have only one Army Corps in even nominal being, for the second Army Corps, sometimes talked of, is still a mere idle word, while the first Army Corps itself has but a shadowy existence. The authors of the Prussian history find another cause of the French defeat in the centralisation of the whole administration of the army, instead of its division under corps. In the United Kingdom we have only one centre for each branch of our force; a centre, sometimes Woolwich, sometimes London, sometimes Aldershot, as the case may be. In India we have two Army Corps, and in a certain sense two centres—Quetta and Rawul Pindi; for other purposes but one centre; and for some purposes only the home centre, as for example for the manufacture of large guns. The last of the main causes given by the Germans for their easy victories over the regular French army at the beginning of the war, also applies to us; they point out that the French army had never been mobilised, and that in the case of partial mobilisations these had never been real, inasmuch as the fraction of the army mobilised was mobilised by borrowing from other regiments and batteries, and other centres than its own. I need hardly say that the same is true of the United Kingdom, where we cannot even hold an ordinary review at Aldershot for the amusement of a foreign sovereign without drawing artillery, at least, from all portions of the country, and, after gigantic efforts, failing to place in the field as many guns as Bulgaria can parade, or half as many as the Roumanian military system annually furnishes for the Roumanian manœuvres.

Autumn manœuvres on a large scale, introduced in 1871, have been discontinued on account of their cost, by the richest power in the world; yet without manœuvres it is impossible to train generals and difficult to train officers and men. We spend 57 millions sterling on the defence of the British Empire, of which 35½ millions are spent out of taxes upon our land forces, and we are never able now to review 25,000 Regulars with over 100 guns. Russia spends 28½ millions upon defence, of which 24 millions are spent upon land forces, and puts in the field, as I have said, complete armies of 180,000 and of 150,000 men at her manœuvres, or 330,000 men in all at the sham fights of a single month, and gives her generals adequate training in the art of modern war.

I will hand to the Secretary for the use of members the French and German budget figures.

APPENDIX.

FRANCE.—*Military Budget "demandé pour* 1891."

1^ière SECTION.—*Service ordinaire.*

	frs.
1. Traitement du Ministre et personnel de l'administration centrale et salaires des hommes de peine et ouvriers employés à l'administration centrale	2,508,240
2. Officiers détachés à l'administration centrale	795,850
3. Matériel de l'administration centrale	351,720
4. Frais généraux d'impressions	420,000
5. Service géographique (personnel)	395,549
6. ,, (matériel)	471,380
7. État major général. Archives et Bibliothèques	151,700
8. Télégraphe militaire (matériel)	270,000
9. Service des chemins de fer (matériel)	64,500
10. États majors	25,753,577
11. Écoles militaires (personnel)	9,761,667
12. Personnel hors cadres ou non classés dans les corps de troupe	12,428,286
13. Solde de l'infanterie	120,672,791
14. ,, des troupes d'administration	4,799,850
15. ,, de la cavalerie	34,435,600
16. ,, de l'artillerie	34,071,990
17. ,, du génie	4,624,150
18. ,, du train des équipages militaires	5,091,780
19. ,, de la télégraphie militaire	137,500
20. Gendarmerie départementale et gendarmerie d'Afrique	34,965,960
21. Garde républicaine	4,764,770
22. Vivres	52,851,500
23. Chauffage et éclairage	1,194,240
24. Fourrages	70,971,883
25. Service de santé (personnel d'exploitation)	316,140
26. ,, (matériel ,,)	9,681,760
27. Service de marche	11,490,580
28. Habillement et campement (personnel d'exploitation)	1,480,020
29. ,, (matériel ,,)	55,570,890
30. Lits militaires	11,151,980
31. Transports spéciaux	779,000
32. Recrutement	759,500
33. Réserve et armée territoriale	499,000
34. Justice militaire (frais généraux) et prisons	735,760

FRANCE.—*Military Budget "demandé pour* 1891"—*Contd.*

1^iere^ SECTION.—*Service ordinaire—Contd.*

		frs.
35.	Ateliers et pénitenciers militaires	193,100
36.	Remonte générale	14,903,261
37.	Recensement des chevaux et mulets	790,000
38.	Harnachement	1,776,880
39.	Établissement d'artillerie (personnel d'exploitation)	691,000
40.	,, (matériel ,,)	14,033,310
41.	Poudres et salpêtres (personnel d'exploitation)	932,190
42.	,, (matériel ,,)	3,490,490
43.	Établissements du genie (personnel)	523,300
44.	,, (matériel)	16,413,000
45.	Écoles militaires (matériel)	3,742,660
46.	Invalides de la guerre (personnel)	105,120
47.	,, (matériel)	296,030
48.	Solde de non-activité, solde et gratifications de réforme	828,900
49.	Secours	4,132,500
50.	Depenses secrètes	600,000
51.	Construction de la nouvelle enceinte et des forts détachés de Lyon	600,000
52.	Dépenses des exercices périmés non frappées de déchéance	
53.	,, clos	
54.	Rappel de dépenses payables sur revues antérieurs à 1891 et non passibles de déchéance	
	Totaux pour la 1^iere^ section	578,470,845
		£23,138,834

FRANCE.—*Dépenses extraordinaires pour* 1891.

2^me^ SECTION.

		frs.
1.	Équipages de campagne	18,200,000
2.	Armement des places	5,500,000
3.	,, côtes	5,500,000
4.	Équipages de siège	7,800,000
5.	Armes portatives	36,000,000
6.	Munitions	11,600,000
7.	Dépenses diverses	700,000
8.	Bâtiments et machines	1,700,000
	Total pour l'artillerie	87,000,000
		£3,480,000

FRANCE.—*Dépenses extraordinaires pour* 1891—*Contd.*

2me SECTION—*Contd.*

	frs.
9. Places de la frontière du Nord	3,000,000
10. Frontières de l'Est	10,000,000
11. Places de la frontière du Sud Est	4,500,000
12. Ports et embouchures	5,645,000
13. Magasins à poudre	8,000,000
14. Améliorations, transports	403,000
15. Bâtiments militaires	5,915,000
Total pour le génie	37,463,000
	£1,498,520
16. Chemins de fer	3,210,000
17. Service de Santé	1,155,000
18. Subsistances	
19. Télégraphie militaire et aérostation	1,100,000
20. Cavalerie	
21. Service géographique	72,000
Total général de la 2me section	130,000,000
Report de la 1ière section	578,470,845
Totaux généraux	708,470,845
	£28,338,834
Add from Civil Estimates for Pensions about £4,000,000 sterling military and £1,000,000 naval, or £5,000,000 sterling in all, from Civil Pension List	£5,000,000
French navy	£8,125,925
Total war expenditure	£41,464,759

GERMANY.—*Military*

I. *Ordinary Expenditure*

	Prussia and Small German States.	Saxony.	Würtemberg.	Bavaria.
	Mark.	Mark.	Mark.	Mark.
1. Ministry of war	1,947,753	103,580	92,550	367,600
2. Military pay office	258,136	27,905	18,150	61,270
3. Commissariat	1,762,555	116,510	124,291	246,590
4. Military chaplains	663,624	38,300	11,112	66,020
5. ,, justice administration	589,094	59,120	67,100	219,241
6. Higher military commands	2,493,642	188,268	139,770	330,906
7. Governors, commanders, and majors of the place	587,777	18,312	15,600	79,021
8. *Adjutantur* officers and officers in special appointments	917,172	93,000	52,800	133,926
9. General staff and topography	2,015,535	125,390	69,450	309,170
10. Engineer and pioneer corps	1,692,768	87,688	45,792	235,004
11. Pay of troops	96,478,578	8,470,274	5,461,841	14,208,046
12. Victualling department	74,900,529	6,494,063	4,042,254	10,942,743
13. Clothing and equipment of troops	20,044,182	1,936,054	1,118,363	2,902,065
14. Garrison administration and service	34,274,482	2,906,389	1,673,936	4,791,487
15. ,, building	497,892	5,300	23,860	70,708
16. Military medical department	5,728,053	472,739	314,539	912,962
17. ,, train and equipages	806,176	59,847	51,212	109,054
18. Provision for depôt and reserve troops	2,329,726	168,773	78,964	261,300
19. Purchase of remount horses	5,567,977	625,320	406,524	928,872
20. Administration of remount depôts	1,698,847	—	—	399,755
21. Travelling expenses, carriage, and transport	5,416,177	322,282	302,861	721,100
22. Military educational establishments	5,050,429	318,478	61,987	479,508
23. ,, prison administration	692,247	94,303	37,850	77,578
24. Artillery and armament	13,928,301	1,077,455	611,166	1,766,113
25. Technical artillery institutions	694,831	49,678	—	114,520
26. Building and repair of fortresses	2,627,248	31,914	12,300	294,785
27. Additional pay for house rent	7,514,365	630,471	439,106	1,310,632
28. Other payments to military men and officials not comprised in the above	107,500	7,295	6,550	15,960
29. Payment in aid of military widows' fund	1,676,200	180,000	139,000	500,000
30. Miscellaneous expenditure	113,400	6,658	3,450	13,500
Total of ordinary expenditure	293,075,196	24,715,366	15,422,378	42,869,436

Budget.

for the Year 1890-91.

Prussia and Small German States.	Saxony.	Würtemberg.	Bavaria.	Total.	
£	£	£	£	£	
97,387	5,769	4,627	18,380	126,073	1. Ministry of war
12,956	1,395	907	3,063	18,321	2. Military pay office
88,127	5,825	6,214	12,329	112,495	3. Commissariat
33,181	1,915	555	3,301	38,952	4. Military chaplains
29,454	2,956	3,355	10,962	46,727	5. ,, justice administration
129,682	9,413	6,988	16,545	162,628	6. Higher military commands
29,388	915	780	3,951	35,034	7. Governors, commanders, and majors of the place
45,858	4,650	2,640	6,696	59,844	8. *Adjutantur* officers and officers in special appointments
100,776	6,269	3,472	15,458	125,975	9. General staff and topography
84,638	4,384	2,289	11,750	103,061	10. Engineer and pioneer corps
4,823,928	423,513	273,092	710,402	6,230,935	11. Pay of troops
3,745,026	324,703	202,112	547,137	4,818,978	12. Victualling department
1,002,209	96,802	55,918	145,103	1,300,032	13. Clothing and equipment of troops
1,713,724	145,319	83,696	239,574	2,182,313	14. Garrison administration and service
24,894	265	1,193	3,535	29,887	15. ,, building
286,402	23,636	15,726	45,648	371,412	16. Military medical department
40,308	2,992	2,560	5,452	51,312	17. ,, train and equipages
116,486	8,438	3,948	13,065	141,937	18. Provision for depôt and reserve troops
278,398	31,266	20,326	46,443	376,433	19. Purchase of remount horses
84,942	—	—	19,987	104,929	20. Administration of remount depôts
270,809	16,144	15,143	36,055	338,151	21. Travelling expenses, carriage, & transport
252,521	15,923	3,099	23,975	295,518	22. Military educational establishments
34,612	4,715	1,892	3,878	45,097	23. ,, prison administration
696,415	53,872	30,508	88,305	869,100	24. Artillery and armament
34,741	2,483	—	5,726	42,950	25. Technical artillery institutions
131,362	1,595	615	14,739	148,311	26. Building and repair of fortresses
375,718	31,523	21,955	65,531	494,727	27. Additional pay for house rent
5,375	364	327	798	6,864	28. Other payments to military men and officials not comprised in the above
83,810	9,000	6,950	25,000	124,760	29. Payment in aid of military widows' fund
5,670	332	172	675	6,849	30. Miscellaneous expenditure
14,658,897	1,236,286	771,059	2,143,463	18,809,605	Total of ordinary expenditure

GERMANY *Contd.—Estimate,* 1890-91.

Expenditure for once, i.e., *not repeated annually, for* PRUSSIA.

(a.) Ordinary Estimate.	Marks.	£
1. Special additions to pay	411,249	20,562
2. Military railways	162,500	8,125
3. Administration of magazines	2,775,400	138,770
4. Clothing and equipment	1,353,420	67,671
5. Garrison establishments	13,401,798	670,091
6. Military medical establishments	1,722,280	86,114
7. Military train	1,764,900	88,245
8. Remounts	643,500	32,175
9. Expenses of moving and transport	1,230,000	61,500
10. Military instruction and education	1,219,425	60,971
11. Artillery and arms	421,550	21,077
12. Technical artillery institutes	15,000	750
13. Engineering and pioneers	1,030,000	51,500
14. Alsace Lorraine	6,894,700	344,735
Total	33,045,722	1,652,286
(b.) Extraordinary Estimates.		
1. Clothing and Equipment	16,788,600	839,430
2. Garrison buildings	525,000	26,250
3. Artillery and arms	109,789,700	5,489,485
4. Alsace Lorraine, including fortifications, 34,800,000	42,118,597	2,105,930
Total	169,221,897	8,461,095
Total of expenditure for once in Prussia	202,267,619	10,113,380
Total of ordinary expenses in Prussia	293,075,196	14,653,760
Grand total	495,342,815	24,767,140
Total for Saxony	—	1,628,892
,, Würtemberg	—	1,097,049
,, Bavaria	—	3,480,461
Add from the "General Pension Fund" (in addition to the sums given elsewhere), for additional military pensions and annuities	—	2,788,592
Grand total for Germany	—	33,762,134

GERMANY *Contd.—Estimate*, 1890-91.

Expenditure for once for SAXONY.

(a.) Ordinary Estimates.	Marks.	£
1. Additional pay to non-commissioned officers and garrison troops in Alsace Lorraine	[18,000	900
2. Increased pension fund for officers and surgeons	3,500	175
3. New cavalry equipments	103,680	5,184
4. Infantry barracks at Leipsic	750,000	37,500
5. New garrison hospital	124,000	6,200
6. ,, building of a drillhouse	95,000	4,750
7. Binoculars for troops..	27,000	1,350
8. Building of a powder magazine	41,800	2,090
9. Ammunition materials	26,000	1,300
Total	1,188,980	59,449
(b.) Extraordinary Estimates.		
1. Clothing and equipment	1,550,000	77,500
2. Artillery and arms	5,123,500	256,176
Total	6,673,500	333,675
Total of expenditure for once in Saxony	7,862,480	393,123
Total of ordinary expenses in Saxony	24,715,366	1,235,769
Grand total for Saxony	32,577,846	1,628,892

GERMANY *Contd.—Estimate*, 1890-91.

Expenditure for once for WÜRTEMBERG.

(a.) Ordinary Estimates.	Marks.	£
1. Additional pay to non-commissioned officers and garrison troops for Alsace Lorraine....	12,156	607
2. Increased pension fund for officers and surgeons	3,000	150
3. New cavalry equipments	74,160	3,708
4. Improvement of barracks at Ulm	130,000	6,500
5. Erection of a drill hall at Ulm	55,000	2,750
6. Shooting range at Ulm	120,000	6,000
7. Drill ground at Stuttgardt	1,500,000	75,000
8. Building of storehouses	136,400	6,820
9. Purchase of binocular glasses	17,800	890
Total	2,048,816	102,425
(b.) Extraordinary Estimates.		
1. Clothing and Equipment	1,042,000	52,100
2. Enlargement of barracks	540,000	27,000
3. Artillery and small arms	2,887,800	144,390
Total	4,469,800	223,490
Total expenditure for once in Würtemberg	6,518,616	325,931
Total of ordinary expenditure in Würtemberg	15,422,378	771,118
Grand total for Würtemberg	21,940,994	1,097,049

GERMANY *Contd.—Estimate*, 1890-91.

Expenditure for once, i.e., *not recurrent in each year, for* BAVARIA.

	Marks.	£
1. Military pay	27,600	1,380
2. Magazines	312,500	15,625
3. Clothing and equipment	2,500,000	125,000
4. Garrison administration	2,545,400	127,270
5. Military medical service	180,000	9,000
6. Remounts	120,000	6,000
7. Military education and instruction	200,000	10,000
8. Artillery and small arms	15,240,000	762,000
Total of expenditure for once in Bavaria	21,125,500	1,056,275
" ordinary expenses in Bavaria	42,869,436	2,143,472
Military pensions	5,614,293	280,714
Grand total for Bavaria	69,609,229	3,480,461

GERMANY *Contd.—Estimate*, 1890-91.

I.—*Expenditure for once, Single Outlays.*

	Prussia.	Saxony.	Würtemberg.	Bavaria.
	Marks.	Marks.	Marks.	Marks.
1. Ordinary estimates	33,045,722	1,188,980	2,048,816	—
2. Extraordinary estimates	169,221,897	6,673,500	4,469,800	—
Total of single outlays (expenditure for once)	202,267,619	7,862,480	6,518,616	21,125,500
Total of ordinary expenses	293,075,196	24,715,366	15,422,378	42,869,436
Grand total	495,342,815	32,577,846	21,940,994	63,994,936
For Bavaria. Military pensions	—	—	—	5,614,293
Grand total for Bavaria	—	—	—	69,609,229

	Prussia.	Saxony.	Würtemberg.	Bavaria.
	£	£	£	£
1. Ordinary estimates	1,652,286	59,449	102,440	—
2. Extraordinary estimates	8,461,094	333,675	223,490	—
Total of single outlays (expenditure for once)	10,113,380	393,124	325,930	1,056,275
Total of ordinary expenses	14,653,760	1,235,768	771,119	2,143,471
Grand total	24,767,140	1,628,892	1,097,049	3,199,746
For Bavaria. Military pensions	—	—	—	280,715
Grand total for Bavaria	—	—	—	3,480,461

GERMAN NAVY.

I. *Permanent Expenditure for* 1890-91.

CHAP.		Marks.
45.	Headquarters (Oberkommando) of the navy	186,815
46.	Imperial navy office	755,340
47.	German naval observatory	235,815
48.	Station commissariat	216,195
49.	Law expenses	29,550
50.	Cure of souls, chaplaincy	47,405
51.	Military drafts (personnel)	9,443,155
52.	Repairing and preservation of ships	6,858,300
53.	Victualling	2,887,880
54.	Clothing	114,304
55.	Allowances and garrison administration	957,108
56.	House and lodging allowances	761,900
57.	Medical establishments	640,003
58.	Passages and conveyance and freight	509,250
59.	Educational	161,901
60.	Dockyards	10,349,693
61.	Artillery and fortification	2,162,825
62.	Torpedo and mining	1,563,646
63.	Pilotage and lighting	203,930
64.	Miscellaneous	202,580
		38,287,595

II. *Expenditure for once.*

a. Ordinary estimates	47,312,020
b. Extraordinary estimates	3,181,550
Total of II	50,493,570
„ I	38,287,595
„ I and II	88,781,165

		Marks.
I. Permanent expenditure	Total	38,287,595
II. Expenditure for once—		
A. Ordinary		47,312,020
B. Extraordinary		3,181,550
Total of II		50.493,570
Grand total I and II		88,781,165
		= £4.439,058

Germany, army	£33,762,134
„ navy	£4,439,058
Total for defence	£38,201,192

Note.—The translations of the figures are only rough estimates in pounds sterling, and have not been made to exactly balance.

Discussion *on* Sir Charles Dilke's Paper.

Mr. Spenser Wilkinson said it seemed to him that the subject of military statistics resembled a sort of bottomless pit in which it was almost impossible to arrive at the lowest depths, but he thought that Sir Charles Dilke's paper dropped the plummet deeper than anything else put before the English public with which he was acquainted. It was very difficult indeed to find out how much a country really spent on its defence. For example, in Germany there were a large number of one-year volunteers who paid the whole of their expenses, and from information given to them by those who had served in that capacity, the average expense was between 200*l.* and 300*l.* a year. The number of these volunteers was about 7,000 in each year. That might be added to the total expenditure of Germany. Then Germany had a good deal of expenditure which did not appear as military items, such as the cost of the railways in Alsace and Lorraine, and in the estimates for 1890-91 the cost of their acquisition and of the construction of additional lines was put down at about 399 million marks, of which a certain amount ought to be added to the military expenditure. It was said that France was going to abolish the extraordinary military budget, but he had noticed that the newspapers had been giving extraordinary attention to the subject of increasing the defences of Toul. He was not aware that that appeared in the budget, and he suspected that it would have to be accounted for. The principal question raised by the paper was, "do we get our money's worth for our money?" When he saw the totals of the British forces, 700,000 men, he always felt an apprehension that the taxpayer would console himself with the thought that he got a very respectable force for his money. He believed that to be a mistaken impression. The question to ask was, "what warlike power does the aggregate force of the army represent which we get for our expenditure?" Besides numbers the quality of the troops must be taken into account, and the amount of training. It was also important to know what sort of organisation managed them in peace; and in order to get at those two factors it occurred to him that they might be represented by a figure of three dimensions. The diagrams on the wall were not intended in the strict sense as statistics, but rather as an interpretation of statistics. He had tried to give a representation of what to a soldier was the relative value of the different forces. (The President asked if Sir Charles Dilke's figures were taken as the foundation.) Mr. Spenser Wilkinson said they were not, but there was no substantial difference. In the first instance he took the German army as it was on 1st April, 1888, and for that purpose he took the data given by our own intelligence division. The first question was, "what is the number available?" The number of an army depended on two things, the annual contingent and the number of contingents. Up to 1888 the Germans used to take 12 contingents. They took a certain number of young men in their twentieth year and kept them for three years, but they regarded as available, immediately on the outbreak of war, all those who had passed through the service during twelve years. In 1888 they passed a law which empowered them to take 18 contingents instead of 12, and he had tried to represent the numbers on the diagram. Eighteen contingents meant about 1,980,000 men. That force he represented by a horizontal line on the scale of 1 millimètre for 2,000 men. Then the Germans had 18 contingents of one-year volunteers of 7,000 each, which with proper deductions gave 94,000 men, represented by another line. Then in 1888 they had also a number who had had only ten weeks' training. Those numbered 148,000 men. He had tried to represent the length of service by a perpendicular line on the scale of 1 millimètre for each week's training. The three-years' men did not serve exactly three years. He had taken it as thirty months, which gave another line, so that the rectangle represented nearly 2 million men with thirty months' service. Then there were 94,000 with twelve months' and 148,000 with ten weeks' service. Sir Charles Dilke had called attention to the fact that an army did not merely consist of a number of men trained and armed, but that organisation was the essential factor. That was a conclusion which every soldier was anxious to impress upon the public. By organisation they meant that the best intelligence which could be obtained was steadily directed to the preparation of all the available forces for their use in war. One thing was perfectly certain, and that was however beautiful a scheme of organisation was introduced, it would not produce its effect for a considerable time. Whatever the views of the authorities, it must take a long time before they permeated the various ranks and found practical expression in the perfect working of the military machine. He had taken as the graphic measure of organisation the time which had elapsed since each country had really devoted its mind to perfecting a modern military organisation. He did not press that however as a final criterion. The line on the diagram marking a third dimension denoted the length of time during which each country had been in possession of something like a modern system. In the case of Germany the basis of the present organisation was laid in 1860, and he had measured a line representing those thirty years. There he had taken 5 millimètres to represent a year; then he would take the solid figure thus produced and say, "that is the number of the German troops, and that is the kind of organisation with which it is to be multiplied." For France he had taken the figures published in the "Fortnightly Review" in 1889, but he did not guarantee them in any way. The French service at that time was five years, but the men did not serve quite five years, and he had taken forty months. He dated the period from which the French began to organise their army from 1873. He had tried to do the same for the English army. The actual average time of service was five years and eight months. He had taken 1882, the year when Lord Wolseley became adjutant-general, as the date from which to draw the line, representing the state of English organisation. One question to be raised was, "when did the moment come when they ceased to get out of a man any labour or expense that had been put into training him?" The Germans evidently in practice thought that that was thirty months, but the English had gone on to sixty-eight months. He had very good reason to think that the opinion in Germany was that they would be able to gain all the benefit they wanted out of troops, for infantry, in two years. The tendency was the same in France, where the five years' term had recently been reduced to three years.

Colonel MAURICE, R.A., said that in order that statistics might be satisfactory, it was necessary that they should be as complete as possible, and take account of as many different points as possible. A unit of comparison was required as to the number of troops and the cost. It was not quite enough to consider what Germany did in the way of raising *corps d'armée*, and to compare that with what we did, because to a considerable extent that begged the question. It assumed that the conditions here were the same as in Germany. For all practical purposes the expense which Germany was incurring was for her European empire, which lay within a ring fence between Russia on the one side and France on the other. That territory was 211,000 square miles, while the British empire which the navy, army, and colonial forces had to defend for the 57 millions was over 9 million square miles. He thought it would not be an unfair method of assessment to take an area of 1,000 square miles, and consider who paid most for the area defended. In the budget for the present year there were expenses for fortresses and garrisons in each of the four continents, independent of India. In addition to that, the frontiers were peculiarly extensive in proportion to area as compared with those of Germany. Still it was not for the sake of those frontiers that Gibraltar, Malta, Bermuda, Halifax, &c., were held, but for that vaster territory on which the greater part of England's wealth was spread, namely, the sea. When considering the question of the forces of the British army, and whether we could base our organisation on the principle of turning out as many *corps d'armée* as possible, the fact should be recognised that there were 35,000 men spread in small detachments all over the world. That *corps d'armée* could by no accident be arranged in the manner in which a German *corps d'armée* was. "Empiring" all over the world must be paid for, and those costs had to be taken into account in estimating relative costs. Moreover another *corps d'armée* had to be kept for the relief of the colonial *corps d'armée*. Russia possessed the advantage that she could turn out a cheap army. The actual pay of a Russian soldier was 10*s*. a year, and when men could be got in England to serve for that sum, a comparison might be made between the English and the Russian army. Moreover no Russian army budget had ever included the cost of the autocratic action of the tzar, when for strategical purposes he, with a ruler and pencil, determined that a line of railway should pass for a thousand miles without regard to big towns or commercial centres. Of course that is a mere illustration of the misleading nature of continental budgets. He thought that Germany paid much more dearly for her army than England; but she paid in a way which may be illustrated by the following statistics: In the Austrian army in the contingent of 1888 there were 3,980 shoemakers, 1,096 farriers, 1,977 butchers, and a large number of joiners, bricklayers, &c. Those men were employed in carrying on their skilled work at nominal pay whilst they were serving in the army. What was extracted from them was the difference between the high rates of pay in civil life and the merely nominal pay they received in the army, and to all intents and purposes that was a tax on the country of the most costly kind, because it interfered with trade and commerce. Colonel Maurice then gave various statistics from General Brackenbury's evidence, illustrating the same point as to the German army. To turn again to our own army and the reliefs for them at home, there must in Great Britain be the relief for India. The whole British army at home consisted absolutely of these two relief forces, that for India and that for the colonial stations. The organisation into *corps d'armée* was merely as good an arrangement as we could make under the conditions of having to provide for the defence of a world wide empire. Therefore that was the first point which had to be taken into account in any statistical comparison. If it were counted on the miles defended, before any comparison as to relative strength could be instituted, the defences in all navy, army, Indian army, and colonial forces ought to be forty-five times the cost of the German army. That cost however of the continental army on which the multiple was taken ought to be the real cost to the country, and not the mere budget cost. Taking account of the facts he had mentioned, the unrecorded cost of the autocratic action of the tzar, the cost incurred by British navy and army in defending wealth upon the seas such as no other power has to protect, and the conditions of the relief of an army dispersed throughout the world, which determined the organisation and cost of the British defences, it appeared to him that the truest summary of the case was to say that in the money cost of the English army we paid for our liberties, our wealth, and our empire. No statistics therefore could be other than misleading which did not take these elements into account. A most valuable series of statistics on this subject was to be found in the twentieth volume of the "Journal of the United Service Institution," under the title "Comparative Cost of Armies of different Nations."

Captain May endorsed Sir Charles Dilke's arguments, and said that if anything he had understated the case, for if the return of the British Army for 1889 were examined, it would be found that the establishment was below its strength to the number of 3,994 men. He was glad that Sir Charles Dilke had referred to the great lack of guns. The guns on paper would not be forthcoming on mobilisation, because 14 batteries would be broken up to make ammunition columns, and because we needed horses. About two years ago they tried to put a battery at Aldershot on a war footing, and in order to do that they had to take every horse away from another battery, and most of the horses of a third battery. In a German tactical book from 24 to 27 batteries were recommended as the proportion of artillery to an army corps. England only legislated for 14, and even they were not ready for the field. Until there was a separate army for India he did not see how they could hope to attain the same satisfactory organisation as existed in Germany. More guns were wanted, more horses, more autumn manœuvres, and more practice ground for the artillery. On the other hand he did not think people quite understood how much was gained by escaping conscription. The average wages of a French artisan were 37*l.* a year, and of a labourer 29*l.* a year; the average wages in France were therefore 33*l.* The French soldier cost on the average 20*l.* a year. The country therefore lost about 13*l.* a year on every soldier in the ranks. He had calculated that on the whole the French nation lost 5½ millions a year in this way. The cost of the English soldier was 55*l.* 1*s.* a year, and of the American soldier 108*l.* 13*s.* 8*d.*, and the comparison of expenditure with the only other nation that kept up a volunteer army was therefore in our favour. Although our organisation was undoubtedly defective, perhaps some crumbs of comfort were to be gathered from this.

The Right Hon. G. Shaw-Lefevre, M.P., said it was very satisfactory to him to find that Sir Charles Dilke had not the same cause of complaint with regard to the navy as with regard to the army. He entirely agreed with the paper that comparing the results of the expenditure upon our navy with that of France, Germany, and Italy, there was no reason for complaint. There were two great branches of expenditure in the navy, namely, the personal and the material, and roughly speaking the expenditure was evenly divided between these two heads. The results of the expenditure in England on the personal were decidedly inferior to those of France, whereas with regard to the material the case was different. Ships were built, and material for the navy provided on the average at 30 per cent. less than in France, while on the average the personal cost about 30 per cent. more than in France. The two thus balanced one another. The expenditure on the navy in France was 8 millions, while in England the average expenditure might be regarded as 12 millions, and the strength of the English navy as compared with that of France was as three to two. It was true that to a certain extent the conscription applied to the navy in France, but not to anything like the extent that it did to the army, because a large proportion of the crews must necessarily be of a permanent character. Still this consideration of the navy showed that there was no inherent difficulty in the organising process of the English departments, which made it impossible to get as good results here as in other countries. The question of comparative expense in the army was a vastly more difficult one to determine. He was a member of the committee three years ago to which Sir Charles Dilke had alluded, and he had always regretted that that committee had not been reappointed, and had not given a report on the question of the comparative costs of our own and other armies. Officers who came before that committee stated that there were six important heads which it was important to bear in mind in comparing ourselves with France and Germany. The first was that those countries got their soldiers under conscription, and therefore in the main for nothing, whereas we had to pay wages. The second point was the higher scale of victualling in our army, which was necessary in order to tempt men into the service; the third, the higher cost of uniforms, which Sir Charles Dilke said officers regarded as also necessary in order to tempt men into the service. Next, the proportion of officers was very much greater in an English than in the German army. The fifth point was the higher rate of salaries both of officers and of civilians attached to the army. The English scale of salaries and pensions to officers was vastly higher than in either France or Germany, and it was extremely difficult to see how that could be amended; it had relation to the higher scale of salaries and profits in civil employments of all kinds in England. Lastly, there was the question of transports. Both the French and German armies were always to be found close to the places where they were recruited, whereas the English army had to be taken about to places all over the world. But even making allowance for all these things, he thought it could not be doubted that the expense of the English army was very high in proportion to the results obtained. The whole draft of Sir Charles Dilke's observations was that we did not get enough for the money expended, and he seemed to desire a great increase in the number of men, and possibly even a second army corps as the result of our present expenditure. There was another way of looking at the question, namely, whether we might not achieve the same results at a far less expenditure. For his own part he was satisfied with the existing strength of the army. He did not desire to have a second army corps ready to be sent to the continent on the event of war. On the contrary he thought it should be an axiom with us never under any circumstances to send an army to the continent to contend with the vast forces of European powers, but to rest mainly on the strength of the navy. In this sense he thought that whatever change was necessary should be in the direction of lowering the cost of our existing force rather than of increasing the force for the same expenditure.

Colonel Goldsmid said that in the archives of the Society, no doubt, might be discovered how much the pyramids of Egypt cost per cubic foot building and how much the Thames Embankment. An interesting lecture might be delivered with a view to show the extravagant cost of building the Thames Embankment when compared to that involved in building the pyramids, which cost so much less per cubic foot. He thought that put the case fairly as between the English army and the armies of continental powers. England had a short service army recruited on the voluntary system, which had to safeguard a world-wide empire, whereas continental armies were as a rule confined to safeguarding their own homes. In other countries conscripts came up at the age of 20, but in England we had to take what we could get in the labour market and were thankful if we could get recruits at 18. These enlisted for seven years with the colours, and this might be extended to eight years if the soldier was at the time serving abroad. It must be remembered however that for medical reasons it is not considered desirable to send soldiers under 20 years of age to most of our possessions, and that moreover it is not practicable to carry out reliefs except at certain fixed seasons depending on local climatic considerations. The consequence is that in many cases only four to five years' service abroad can be obtained from a soldier; hence a constant flow of troops between Great Britain and her colonies resulted, the expense of which was considerable. As regards pay he did not consider either our officers or men were better paid than those of continental armies, considering the circumstances under which they were raised, and taking into consideration, in the case of officers, that the cost of living in general society in England was considerably above that in foreign countries. Pay it is true is high in India, but it is unreasonable to expect that individuals would expatriate themselves to unhealthy or unpleasant climates without a *quid pro quo.* In conclusion, to illustrate his meaning as to the different conditions under which British and foreign troops served, he could not do better than quote the reply he gave a few years ago to the then German naval and military attachés, who said they would like to know the nature of the work in the Quartermaster-General's branch in England so as to compare it with that in their own country. He accordingly showed them a map of the world hanging up in the office, and explained to them what he was working at at the moment of their visit, *i.e.*, making out the programme of one of the many troopships proceeding on trooping duty that season, showing that it was to leave Portsmouth on 15th October with a battalion on board, dropping it at Bermuda, picking up another there and dropping it at Halifax, taking one there to Egypt to relieve another for Gibraltar, conveying the battalion from Gibraltar to the West Indies, the one at the West Indies to Natal, that at Natal to Singapore, the battalion from Singapore to Bombay, from whence the troopship sailed to Ceylon, Mauritius, Natal, the Cape, St. Helena, home, picking up at each station invalids and time expired men for discharge; a voyage of over 30,000 miles. On the same map a crown piece would have covered all the moves of the German army.

Sir Charles Dilke (in reply) said that with the greater part of Mr. Spenser Wilkinson's speech he so thoroughly agreed that he ventured to offer no criticism upon it, but it was only right that he should say that he does not think the question of organisation was capable of statistical treatment. Mr. Wilkinson's diagrams were most useful as regarded length of service and the value of the men, judging from their training, but he could not go all the way Mr. Wilkinson did, as to length of time proving the value of a system. He believed the body guard of Amazons in Dahomey had been in existence for hundreds of years. Colonel Maurice's observations were most able, as everything that fell from his lips or came from his pen was, but he could not agree with him as to a large portion of his speech. He (Colonel Maurice) had pointed out that the British army had to act for the British empire, which was of vast size as compared with Germany, and that therefore not only the needs in time of war should be taken into account, but also the enormous area which was defended in time of peace. But was it defended? Between 3 and 4 millions of the 9 million square miles were in Canada, and in all that vast territory they only held the single fort of Halifax. There were 36,000 men of the Canadian militia, who were paid for partial service to defend an enormous frontier, which really could not be said to be defended. In the same way Australia was defended by herself, but her geographical position was such that no enemy could come against her as long as she remained a portion of the British Empire. The part that England defended was very small. If time had permitted he should have pointed out that provision was not made for the adequate garrisoning of coaling stations. He admitted that one army corps was scattered about the world at the coaling stations, but Colonel Maurice's general argument, of course like the argument of all soldiers, raised the question of the effect produced by the absence of conscription upon cost. He would ask any hearers of the paper to look into it for themselves, and try and see what were the items which conscription really affected. He thought they were only pay, and victuals to a smaller degree. A very large part of the pay was for officers, which was not affected by conscription, and the amount affected was not so large as some people were disposed to think. After all, the expense of the army was very great, even if allowance was made for the absence of conscription, 57 millions a year were spent on the defences of the British empire, and would not many members of the Royal Statistical Society be competent to run the thing for a less sum? He agreed with the greater portion of Mr. Shaw-Lefevre's remarks, but as regarded the high proportion of officers to men, distinctions must be drawn between foreign powers. In France there was a much higher proportion of officers to men than in Germany. Probably one of the weaker points of the French army was that there were rather fewer men with the colours than there were supposed to be, but they had a larger number of trained officers. With regard to transport France had a great deal, and during the past few years it had been larger than that of England in proportion, in consequence of the number of men that were sent to Tonquin. The French had been carrying on the war there with a short service army. He did not want to see more men for the money in England, but better organisation. Even without conscription there was no difficulty in this country in getting numbers of men, but what was needed was proper organisation. He concurred entirely with what fell from Captain May in regard to the difficulties that arose in consequence of our connection with India. Those difficulties pointed to a return to a separate army for India, though not like that of the old

Company. In conclusion he thanked the Society for the manner in which they had received his paper, and wished to express his satisfaction at its calling forth so good a discussion.

Mr. SPENSER WILKINSON wished it to be understood that the portion of his diagram representing organisation was not intended to be statistical, but merely a graphic way of expressing an opinion which he was by no means alone in holding.

The PRESIDENT directed the attention of the meeting to the approaching assembly of the International Congress of Hygiene and Demography in London, and hoped that all who took an interest in those important subjects would attend and share in its work, of which a programme would be given to all who applied for it.

On the conclusion of the discussion on Sir Charles Dilke's paper, the President referred particularly to the subject of the European force in India, which he considers was not taken sufficiently into account in estimating the cost of the British army when contrasted with that of the great military powers. He considered the short service system to be altogether inapplicable to India, and a source of considerable unprofitable expenditure, as he had shown some years since (in 1866) in his lectures on the re-organisation of the army, with special reference to the British soldier in India, given before the United Service Institution, and published in the tenth volume of its transactions, a quarter of a century since.

He also referred incidentally to a singular failure of the ammunition of the European regiments in the first China war, when he was attached to the Bengal Artillery, and how the want was supplied chiefly by his instrumentality, when attached to the select committee of artillery at Dum Dum—and concluded by proposing a hearty vote of thanks to Sir Charles Dilke and to the gentlemen who had taken part in the discussion.

The OPERATION *of the* CONTAGIOUS DISEASES ACTS *among the* TROOPS *in the* UNITED KINGDOM, *and* MEN *of the* ROYAL NAVY *on the* HOME STATION, *from their* INTRODUCTION *in* 1864 *to their* ULTIMATE REPEAL *in* 1884. *By* ROBERT LAWSON, LL.D., *Inspector-General of Hospitals.*

[Read before the Royal Statistical Society, 20th January, 1891.
The President, F. J. MOUAT, M.D., F.R.C.S., LL.D., in the Chair.]

THE great prevalence of venereal affections among the troops serving in the United Kingdom, and the men of the Royal Navy on the Home Station, from 1860 to 1863, led to the adoption of measures to reduce the frequency of that class of diseases, by subjecting the unfortunate females, who were the chief sources of its diffusion, to medical treatment while in a state capable of communicating it to healthy persons. The first Act, passed in 1864, merely provided for the treatment of such persons as applied voluntarily to have the advantage of it, or who were specially reported to a magistrate, and, while undergoing this, they were at liberty to leave the hospital whether cured or not. The Act of 1864 was amended in 1866, and this again in 1869, the additions being calculated to render them more efficient in their operation. This state of things went on with little alteration until 1882, when personal examination was stopped, and in 1884 the Acts were repealed. The records of disease of this nature, both among the troops, and the crews of H.M. ships at the stations where the Acts were in force, and at other points, are available to show its progress under the different conditions in which these men lived, and the whole may be regarded as a most interesting experiment on public health, in which we have not only the marked improvement under the employment of measures favourable to that end, but relapse to its former state on their abrogation. Our President is desirous that an authentic relation of these facts should appear in the *Journal* of the Royal Statistical Society, and has invited me to undertake its preparation, I having arranged the army statistics bearing on it for Dr. Sloggett, Inspector-General of Hospitals, R.N., who was Superintendent of the Lock Hospitals under the Acts at the time, and conducted their case before the Parliamentary Committee which sat from 1879 to 1881 to investigate their working.

Before proceeding to the proper subject of this paper, it is necessary to indicate the forms of disease which came under the operation of the Acts; the different manner in which separate bodies of men, at the same place and at the same time, were affected by these diseases; and a very remarkable fluctuation, of an epidemic nature, extending over several years in succession, which is quite as great as that of measles, and the area it occupies very extensive.

Primary venereal affections present themselves as sores, or increased discharges of a more or less inflammatory nature from the urinary passages. The sores are frequently followed by a constitutional affection called secondary syphilis, and, of late years, a further transition of the constitutional complaint has been recognised which is named tertiary syphilis. The discharges from the urinary passages are followed occasionally by rheumatism, and more frequently by local inflammation, which may cause much trouble, but they do not affect the system in the injurious manner that syphilis does.

Primary venereal sores are far most commonly met with on the genital organs, but they may be produced on any part of the body, either intentionally by inoculation from an existing sore, or take place unintentionally by a portion of the surface discharge from a sore in one person coming into contact with a raw surface in another. The primary sores have long been known to be of two descriptions, viz., those that are followed by the constitutional disease, and hence designated "infective sores," and those which do not lead to this, and for this reason called "non-"infecting," or "simple sores." It was found at an early period that sores which left much thickening and induration around their site, and hence named hard sores, were frequently followed by constitutional symptoms, and this idea gave rise to the opinion that hard sores were the true infecting sores, and those which healed without induration were devoid of such troublesome consequences. Mr. Lane, of the London Lock Hospital, and Mr. Macnamara, the medical officer of the Dublin Lock Hospital, stated in their evidence before the Committee that, in their experience, the constitutional affection did not follow the indurated sore exclusively, and that in most cases it was impossible to say whether any given sore would eventuate in the constitutional affection, but neither of them was able to give a numerical statement of the relative frequency in which each of these sources occurred. Regimental medical officers, who formerly remained in the same corps for many years, and had the same men under observation, and who were interested in the investigation, had thus an opportunity of connecting the secondary disease with the particular form of sore which it followed, and among such the general belief was that the constitutional disease frequently followed soft sores. The following striking instance occurred under my own observation in the west of Ireland. The depôt companies of the 47th Regiment, with an average strength of 254 for the year, under my charge, marched into Castlebar on 20th and 21st July, 1842, in a healthy condition. From this date to 24th November 90 men were admitted with primary venereal sores; from 24th November to 16th March, 1843, when the depôt left for Boyle, fresh admissions had almost ceased; and after arrival at Boyle there were very few admissions of primary sores, and these of a mild description. From 20th May, 1842, to 1st July, 1843, there had been 27 cases of hard sores treated and 49 cases of secondary syphilis, so that, admitting every hard sore eventuated in the constitutional affection, there were still 22 other instances following sores in which the induration was not observed. Indeed, it was expressly mentioned in the notes made at the time that excoriated sores were more frequently followed by the constitutional disease than other forms. Practically, in short, the matter comes to this—that it cannot be shown, with certainty, that the constitutional affection will follow a given sore in any particular instance until the general system shows unmistakeable signs that it is so affected.

During the investigation of the Select Committee objection was taken to syphilitic sores and simple sores being included together, under the term "primary venereal sores," in the returns sent in by the Army Medical Department, as being an unscientific arrangement, and calculated to involve the question in greater obscurity. This is not so, however, for, as has been shown in the last paragraph, it cannot be indicated with certainty that the constitution will become affected, in any particular case, until unequivocal manifestations of such infection make their appearance, any attempt to separate the two forms of sores must be altogether arbitrary, and the results so obtained can afford a very untrustworthy basis for statistical inquiry. In some instances hard sores fail to produce the constitutional affection, and even when that does arise, it may be very slight, and escape notice; but with a possible reduction in numbers from these causes, the frequency of the secondary disease is the only satisfactory test of the prevalence of true syphilis, and the estimated amount from the arrangement of the primary sores may be much in error. In Table I at the end, the returns of admissions among Dragoon Guards and Dragoons in the United Kingdom for primary syphilis, simple sores, and secondary disease, are given for the periods 1830-37, 1837-47, and 1860-64. Similar returns are added for the last two periods for the Foot Guards and the infantry. From these it appears that the ratios per 1,000 of admissions from primary syphilis, simple sores, and secondary disease, were as under:—

Periods.	Dragoon Guards and Dragoons.			Foot Guards.			Infantry of Line.		
	Syphilis, Primitive.	Simple Sores.	Secondary Syphilis.	Syphilis, Primitive.	Simple Sores.	Secondary Syphilis	Syphilis, Primitive.	Simple Sores.	Secondary Syphilis.
1830–37	31·7	48·1	7·6		No	return	availabl	e	
'37–46	25·7	53·7	8·6	118·7	22·0	13·3	61·5	133·7	20·9
'60–64	118·8	0·6	45·7	153·7	0·3	33·5	106·8	0·3	32·0

Here, in the first period, the primary syphilis returned by the cavalry was moderate in number, and the simple sores were about a half greater; the constitutional syphilis was 7·6 per 1,000, which was equal to 1 in 4·2 of the primary syphilitic sores, or, taking those and the simple sores together, as primary venereal sores, to 1 in 10·5. In 1837-46 the cavalry had rather less primary syphilis, but the simple sores were increased in number; the ratio for secondary syphilis was 8·6 per 1,000, being 1 to 3 on the primary syphilis, and 1 in 9·2 of the syphilitic and simple cases combined. The infantry had twice as many primary syphilis cases as the cavalry, and the simple sores were again more than twice the number of the syphilitic; the secondary cases were 20·9 in the 1,000, and were equal to 1 to 2·9 of the syphilitic, or to 1 in 9·6 of these and the simple cases combined, corresponding very closely with the same proportions in the cavalry. In the Guards the distribution of the respective forms was very different: the admissions for primary syphilis were practically twice as numerous as among the infantry, while those for simple sores were one-sixth as numerous only; the cases of secondary disease were 13·3 per 1,000, being 1 in 8·8 of those returned as primary syphilis, or 1 in 9·6 cases of other forms taken as primary venereal sores, showing that considerably more than twice the number of non-infecting sores had been classed as primary syphilis in the Foot Guards than in the cavalry or infantry of the line during the same period. From 1860 to 1864 there was a very remarkable increase of admissions for primary syphilis, as well as of secondary disease, in all three descriptions of force, while those for "simple sores" had dwindled to a small fraction; in the cavalry, the admissions for the secondary disease, 45·7 per 1,000, were in the ratio of 1 to 2·6 cases of primary; in the infantry the secondary cases were 32·0, or 1 in 3·4 of the primary; and in the Foot Guards 33·5, equal to 1 in 4·6; the Foot Guards in each of the two periods including a greater number of simple venereal sores, under the head of primary syphilis, than either the cavalry or infantry of the line, and, even in the latter, two cases out of every three returned as primary syphilis seem really to be simple venereal sores. It was for these reasons that the Army Medical Department included all primary sores under the single group of "primary venereal ulcers," which involved no hypothesis, and avoided the obvious error of the arbitrary division ordinarily made. In 1885 the College of Physicians, in the latest edition of their "Nomenclature of Diseases," have separated the simple sores from the primary syphilitic, and have placed the former among the affections of the generative organs. In compliance with this the same change has been made in the Army Medical Returns, but a continuance of the practice, without the necessary precautions, will only serve to substitute an arbitrary conclusion for a more trustworthy result, and thus seriously impede the advance of our knowledge of this important disease.

The extent to which bodies of men, even at the same station, at the same time, become affected, though apparently equally exposed to the same chances of infection, varies to a degree that could hardly have been anticipated. On the recommendation of the late Mr. Acton, that there should be a lavatory in every barrack, where men might have an opportunity of washing after return to their quarters, an experimental one was erected in the east infantry block at Aldershot, in 1868, and I received instructions to report on the results. The portion of the permanent barracks, at Aldershot, set apart for the artillery and infantry, consists of four separate blocks of buildings, in a line extending from east to west, facing the town, and within a quarter of a mile of it. The artillery barrack is on the east, and the east infantry block, the centre, and west blocks follow in succession. The artillery barrack was occupied during the period of observation by two batteries of Field Artillery, numbering 280 men; the infantry blocks had each a battalion averaging 630 men; they are designated here A, B, and C, passing from east to west. As the night lavatory was erected in the east infantry block, it was obviously necessary to keep the returns of disease for each of these corps separate as a check on A; and this continued from 26th September, 1868, to 30th July, 1869, a period of forty-four weeks, except in the case of A, which left the station in the 30th week. There were at the same time three infantry battalions of similar strength in the North Camp (wooden huts), two miles from the town, indicated here as D, E, F. Of these D was forty-four weeks under observation, E thirty-four weeks, and F thirty weeks. All the regiments had returned from foreign service in the early half of 1867, B from the Cape of Good Hope, the other five from India. The admissions for primary venereal sores and gonorrhœa in each of these corps, reduced to the ratio per 1,000, for one year, gives the following results :—

Artillery.		A.		B.		C.		D.		E.		F.	
Primary Sores.	Gonorrhœa.	Primary Sores.	Gonorrhœa.	Primary Sores.	Gonorrhœa.	Primary Sores.	Gonorrhœa.	Primary Sores.	Gonorrhœa.	Primary Sores.	Gonorrhœa.	Primary Sores.	Gonorrhœa.
141·1	120·4	84·0	101·2	42·5	110·6	124·4	234·7	114·5	69·4	58·9	56·6	22·9	56·9

So far as I could ascertain, the men of A did not make much use of the night lavatory; those of B in the next block had the lowest admission rate for primary sores of any of those in the permanent barracks, though they had no regimental arrangements for night ablution; while those of C, in which there was a room beside the guard room, in which appliances for this purpose were available, and to which all prisoners in the guard room, and men returning to barracks after tattoo, were sent before going to their rooms, had nearly the highest admission rate for primary sores, and far the highest rate for gonorrhœa of any of those in the table. In the North Camp, D had a high rate for primary sores; E had one little more than half as high, and in F the rate was 22·9 per 1,000 only, or one-fifth only that of D. Here there was a regimental arrangement for night ablution carried on in E, to which the surgeon of the regiment attributed the low admission rate from primary sores, but as in the permanent barracks, F, the next corps to E, had no night lavatory, yet had the lowest admission rate by far of all those referred to. The prevalence of gonorrhœa in the North Camp was little more than half that in the permanent barracks. The amount of gonorrhœa in both situations shows the interconrse was pretty general, and the fluctuation in the primary sores is evidence not that facilities for ablution were useless, but rather that in B, E, and F it was had recourse to immediately after exposure to infection, when it was much more likely to prove efficient.

Another important inference is to be drawn from the numbers in this table, viz., that no great weight, as regards the incidence of the disease on the country, can be attached to the sickness of small bodies of men taken by themselves. Many small detachments, well spread over a considerable area, may afford a pretty correct view as to its state of diffusion, but it is always desirable, and the larger the numbers are the more satisfactory and trustworthy they become.

When the records of syphilis from year to year are available in such a form as admits of precise calculation, it is found they fluctuate very considerably like other epidemic diseases. Thus in Table II, which shows the admissions for primary venereal sores and gonorrhœa among the Dragoon Guards and Dragoons in the United Kingdom, annually, from 1830 to 1837, and those of the same force, and of the Foot Guards (chiefly quartered in London) from 1837 to 1847, with their millesimal ratios throughout, among the Dragoon Guards and Dragoons the mean ratio of primary venereal sores for the seventeen years was 79·5 per 1,000; it was 72 per 1,000 in 1830, 96 in 1831, 80 in 1832, 95 in 1833; after which it went down to 63 and 62 in 1836-38. The ratio rose again to 82 in 1839-40, and fell to 61 the following year, from which it rose to 108 in 1843-44, declining to 79 again in 1845-46. In the Foot Guards the mean rate for the ten years was 140·8; in 1837-38 the ratio was 107 only, rising to 143 the following year, and it fell back to 126 in 1839-40; it then rose to 153 in 1841-42, and to 217 in 1843-44, falling to 135 the following year, and to 102 in 1846-47. Similar fluctuations occurred in gonorrhœa, but in different years, and not quite so pronounced. From 1847 there are no detailed returns of the diseases among the troops in the United Kingdom until 1859. In 1860 the ratio per 1,000 of admissions for primary venereal sores among the troops at the whole of the home stations was 140, and from this date there was a continuous fall, though with frequent minor fluctuations, till 1875, when the ratio was 46. A rise then commenced, and the ratio went up to 125 in 1884; since which it had fallen to 83·5 in 1889. The causes which led to these results will now be explained.

When arrangements came to be made for carrying out the details of hospital treatment under the Act at different points, fourteen of the largest stations were selected, which were known subsequently as the "stations which came under the Acts," and fourteen others, all of those remaining at which an average strength of 500 or upwards was quartered annually, were chosen to compare with them, which were named "the fourteen stations never under the "Acts;" these groups respectively embraced:—

14 Stations which came under Act.	14 Stations never under Act.
Devonport and Plymouth	Isle of Wight
Portsmouth	London
Chatham and Sheerness	Warley
Woolwich	Hounslow
Aldershot	Pembroke Dock
Windsor	Sheffield
Shorncliffe	Manchester
Colchester	Preston
Winchester	Edinburgh
Dover	Fermoy
Canterbury	Limerick
Maidstone	Athlone
Cork	Dublin
Curragh	Belfast

Subsequently, when it was found that other stations never under the Acts had a considerable number of men distributed amongst them, they were added to the fourteen, and designated, "all the "stations never under the Acts." The object of these arrangements was to show the varying incidence of the disease concerned over the country, from year to year, at points where its progress was not interfered with by the operation of the Acts, so that it might be eliminated at the stations under them, leaving the changes due to the Acts apparent. Taking the returns for all stations "never "under the Acts" give considerably lower ratios of sickness, and less boldness of curve than when compared to the "fourteen "stations under them," as was anticipated; but from 1860-84 every fluctuation which appears in the curves for the fourteen stations, except two slight ones for 1864 and 1882, is found in that for all the stations never under the Acts. The accompanying diagram gives the curves for the fourteen stations "never under the Acts" uppermost, that for *all* the stations "never under them" in the middle, and that for the "fourteen stations which came under "them" lowermost.

The Acts commonly described as the C.D. Acts are those of 1864, 1866, and 1869; these may be considered as coming into force in each instance on 1st January of the following year; and the diagram shows how the progress of the primary sores in each of the groups was affected thereby. The Act of 1864 provided in substance that on information being laid before a Justice of the Peace by a Police Superintendent or Inspector, or a medical practitioner, showing that he had reason to believe a woman was a common prostitute, and infected with venereal disease, and that she had been within the limits of certain districts within a specified time for purposes of prostitution, the magistrate could order her to be taken to a certified hospital for examination. Provision was also made for voluntary submission to examination on the part of the woman, and on the certificate of a medical officer that the woman was diseased, the Justice could issue an order for her detention in hospital for a period not exceeding three months. Penalties were also imposed on persons aiding and abetting, which need not be specified here. By the Act of 1866 the Admiralty, or Secretary of State for War, were authorised to provide hospitals for the treatment of the contagious diseases. Periodical examination of prostitutes once a fortnight was ordered, and the period a woman might be retained under treatment was extended to six months if found necessary. The order for examination was to be in force for twelve months only, but could be renewed by the magistrate on reason shown that the female had rendered herself subject to its repetition; and, on the other hand, any woman deeming herself unjustly treated might

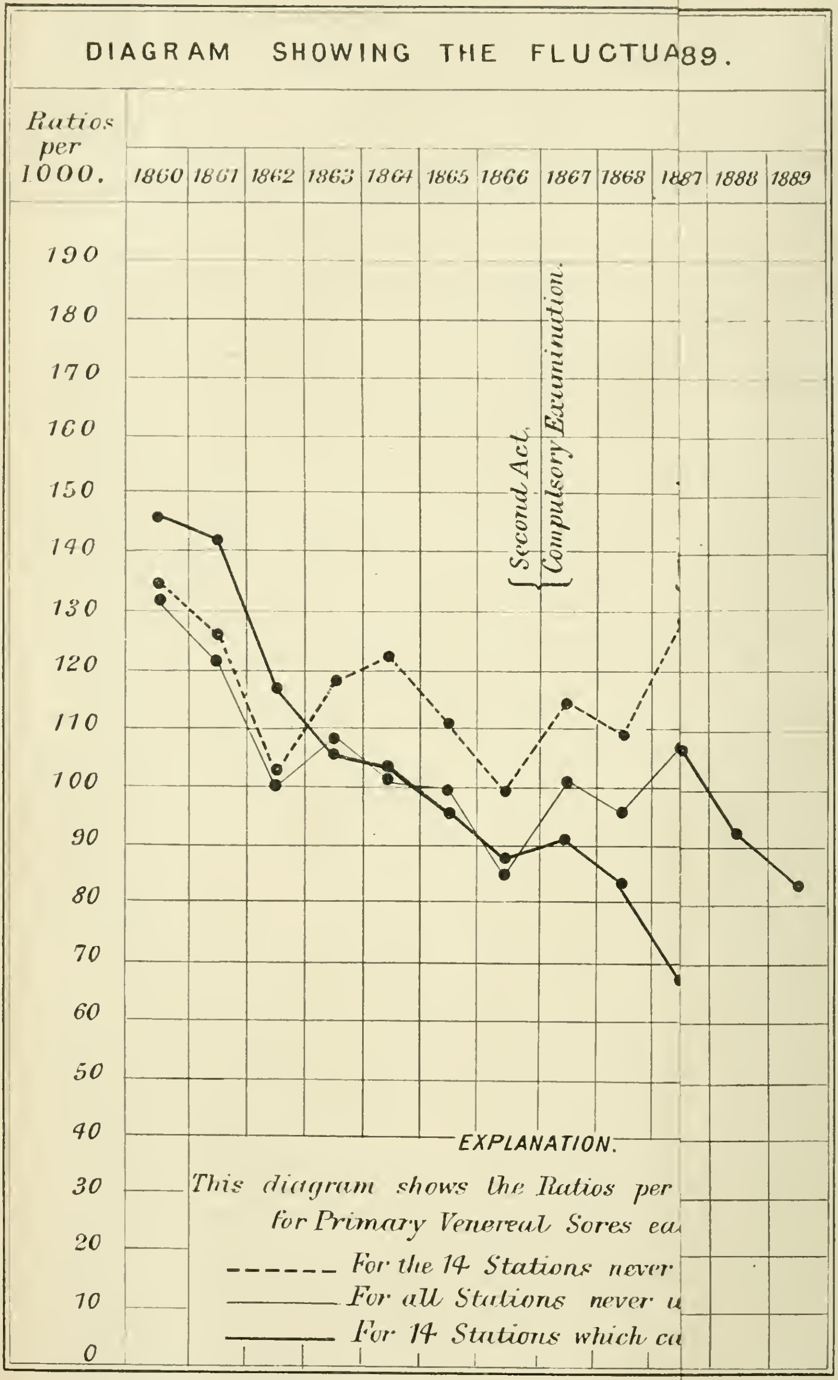
DIAGRAM SHOWING THE FLUCTUA89.
Ratios per 1000.
1860
1861
1862
1863
1864
1865
1866
1867
1868
1887
1888
1889
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Second Act,
Compulsory Examination.
EXPLANATION.
This diagram shows the Ratios per
for Primary Venereal Sores ea
------ For the 14 Stations never
———— For all Stations never u
———— For 14 Stations which ca

apply to a magistrate to hear the case, and if he were satisfied she had ceased to be a common prostitute, or if, with his approval, she entered into a recognisance for her good behaviour during three months, he could order her to be released therefrom. A woman on discharge from hospital well, after any period of treatment, was no longer subject to the order of periodical examination, unless under a fresh decision of a magistrate. By the Act of 1869 it was provided that if the examining surgeon had reasonable grounds for believing a woman was affected with a contagious disease, but found she was not in a condition that he could examine her properly, she might be detained in a certified hospital for five days to enable this to be done. It was also enacted that, if at the expiring of six months' treatment a female was not cured of her disease, she might be detained for another three months for this purpose. Voluntary submission by a woman, in writing, was also declared to have the same effect as a magistrate's order subjecting her to examination.

The limits of many of the "fourteen stations which came "under the Acts" included, for the purposes of the Acts, localities geographically outside them. Thus, for instance, Plymouth and Devonport include, amongst other places, Dartmouth. The Acts applied not merely to common prostitutes residing within the limits of the subjected districts, but also to common prostitutes who, being resident within ten miles of such limits, or, having no settled place of abode, have, within fourteen days, been either within these limits for the purposes of prostitution, or been outside those limits for the purposes of prostitution in company of men resident within those limits. The hospital accommodation was provided gradually, and with the necessary organisation came fully into operation at all the stations in the beginning of 1870. In the end of 1873 an order was issued by Lord Cardwell, then Minister of War, stopping the pay of soldiers in hospital, labouring under primary sores or gonorrhœa, during their period of treatment. It was pointed out at the time by the Medical Department that this would tend to much concealment of disease, and have no effect in restraining the number affected; but, nevertheless, it continued in force until the end of 1879. The personal inspection was suspended in 1882, and in 1885 the division of military stations into those under the Acts and not under them ceased.

In Table III the strength and numbers admitted for primary sores, secondary syphilis, and gonorrhœa, annually, with the ratios per 1,000, are given for each of the three classes of stations, from 1860 to 1884, and a smaller Table, IIIb, is added, giving the corresponding numbers for the whole force at home from 1885 to 1889. In Table III the years have been grouped so as to correspond with the changes introduced from time to time, and bring out their effects more distinctly. In the accompanying diagram, which gives the ratio per 1,000 of admissions for primary sores at the groups of stations in the successive years, these features are strongly marked. Thus in 1860, at the fourteen stations which came under the Acts, the ratio was 146; at "all the stations never under them" the ratio was 131; and at the "fourteen unsubjected stations" it was 134. From these points all fell, so that in 1862 they stood at 117, 99, and 103 respectively. In 1863 the admissions at the "fourteen "unsubjected stations" rose to 117, while those at the "fourteen "subjected" were 107, and at the whole unsubjected, 108; and from this year the "fourteen unsubjected stations" continued much above the ratios for all the unsubjected stations in the diagram. The compulsory examination began to take effect in 1867, and though there was an increase of the incidence of the disease on the country, as indicated by rises in the ratio of 17 per 1,000 in both the "fourteen" and "whole unsubjected districts," that at the fourteen stations under the Acts was 4 per 1,000 only, and from this year the ratios at the fourteen subjected stations were always much under those in the whole until 1884, the last year of the comparison. In 1868 there was a fall of the ratios at all these classes of stations of from 5 to 8, followed in 1869 by a rise of 19 in 1,000 at the "fourteen unsubjected stations," of 11 at "all the subjected," but a fall of 17 at the fourteen subjected. In 1871 the incidence of the disease on the country seemed at the lowest, being 93 for the fourteen unsubjected stations, 81 for all the unsubjected, and 51 only for the fourteen subjected. There was a considerable rise in 1872, followed by a subsidence to nearly the same points in 1873 as in 1871. The stoppage of pay showed its effects in 1874 by a fall at each class of stations, and which was continued in 1875, and still traceable up to 1877, after which the advance of another epidemic wave caused a rise at the "fourteen "unsubjected stations" of 40 per 1,000; at "all the unsubjected" of 20; while at the fourteen subjected it was 5 only. In 1879 there was a slight reduction of the ratio at both classes of unsubjected stations, but a rise of about the same amount at the fourteen subjected; but in 1880, with the cessation of stoppage of pay, there was a general rise amounting to 39 at the fourteen unsubjected stations, to 37 on the whole unsubjected, and to 27 at the fourteen subjected stations; a portion of this was due, no doubt, to an increasing incidence of the disease over the country, but a large portion also to the removal of the inducement to conceal primary forms of the disease by stoppage of pay. In May, 1883, the compulsory examination of women was abolished, and the last impediment to the increase of the disease at the fourteen subjected stations having been removed, the ratio of admissions at these increased 32 per 1,000, against a fall of 2 at all the unsubjected stations, and a moderate rise of 9 at the fourteen unsubjected; and in 1884 there was a further rise of 28 at the subjected stations, against a fall of 8 at the whole of the unsubjected stations, and of 28 at the fourteen unsubjected. This extraordinary rise in the ratio of primary sores at the subjected stations, placed them in 1884 at 138 per 1,000, midway between those at the two sets of unsubjected stations, and 13 above the general mean for all the troops on the home station last year. It differed little from what they were in 1860, and following as it immediately did on the removal of the last restriction on its propagation, there can be no doubt of its cause. The returns for the army do not give the distribution of the troops into subjected and unsubjected stations after 1884. The strength and numbers which came under treatment for the same forms of disease from 1885, on the home stations, have been consolidated, and are placed in the diagram in continuation of the curve for the subjected stations; they indicate a reasonably rapid diminution in the incidence of the disease in the country, which among the troops had fallen to 83·5 per 1,000; the details are given in Table III B at the end; that this reduced incidence of the disease on the country is real, is manifest from the Registrar-General's Returns, which show a striking diminution of deaths from syphilis among the civil population, at the same time, three-fourths of which is among children under one year of age.

The general course of the contagious diseases at the three classes of stations specified above, has been detailed in Table III, and the curve for each has been represented in the diagram, but now a more exact estimate may be made by using the sums for the periods into which the table is divided, each of which embraces the operation of one or more of the factors specified above as having influenced their frequency. The first period, 1860-63, the four years before the Act of 1864 was introduced, shows the prevalence of the three forms of disease in each class of stations, when subject to the influences in operation at these during the period. During the second period, 1864-69, the Acts were being gradually introduced, as hospital accommodation and other necessary arrangements were completed at the several stations comprised in the group, and hence was altogether a transitional one, showing nothing further than that the restrictive measures adopted had already produced a marked reduction of disease, and may therefore be passed over. The third period, 1870-73, the Acts were in force for the whole time, under their fullest development, at all the fourteen stations which came under them, with one or two exceptions of single stations in January and February, 1870, and the results show their full influence in limiting the extension of these diseases; but as there had been a considerable reduction of them at the other two groups, indicating their diminished incidence over the country, this must have acted at the fourteen subjected stations as well, and has to be subtracted from the results there, leaving the portion really caused by the repressive measures under the Acts. Thus, taking the ratios per 1,000 from Table III, the admissions were:—

Periods.	At 14 Stations under Acts.			At all Stations never under Acts.			At 14 Stations never under Acts.		
	Primary Sores.	Secondary Syphilis.	Gonorrhœa.	Primary Sores.	Secondary Syphilis.	Gonorrhœa.	Primary Sores.	Secondary Syphilis.	Gonorrhœa.
1860-73, no Act in force	129·8	39·9	134·6	116·3	30·5	116·1	120·6	31·6	112·1
1870-73, Acts in force at fourteen stations	52·5	20·2	100·3	86·0	27·4	95·0	107·9	31·8	71·6
Difference between 1860-63 and 1870-73	77·3	19·7	34·3	30·3	3·1	21·1	12·7	+ ·2	40·5
Percentage of fall or rise	−60	−49	−25	−26	−10	−18	−10	$+\frac{1}{158}$	−36

Here, at the stations under the Acts, the fall in primary sores from 1860-63 to 1870-73 was 60 per cent.; at all the unsubjected stations the fall was 26 per cent., and, taking this from 60, 34 remains as due to the repressive action of the Acts. Taking the fourteen stations never under the Acts, where the intensity of the disease was greater than the mean over the whole country, and not very different from what it was in the fourteen under the Acts, the fall in the period under consideration was 10 per cent. only; and this, taken from 60, would leave 50 per cent. as the reduction due to the Acts; and it is probable it really lay between 34 and 50, or about 44. Proceeding similarly with secondary syphilis, the fall for the same period under the Acts was 49 per cent.; at all the stations never under them it was 10 per cent. only, leaving 39 as occurring under the Acts. At the fourteen stations never under them there was a small fractional rise, too small to be taken into consideration. With gonorrhœa the fall under the Acts was 25 per cent.; at all the unsubjected stations it was 18, leaving an excess of 7 under the Acts; while at the fourteen unsubjected stations it was 36, or 11 more even than under the Acts.

The effect of stopping the pay of soldiers under treatment in hospital, with primary sores or gonorrhœa, comes next for consideration. The warrant was signed in October 1873, and cancelled on 17th November, 1879, and practically was in force from 1874 to 1879, inclusive. Comparing the facts for this period with those for 1860-63, as already done for 1870-73, the results will show the difference between them and those for 1870-73 as already obtained :—

Periods.	At 14 Stations under Acts.			At all Stations never under Acts.			At 14 Stations never under Acts.		
	Primary Sores.	Secondary Syphilis.	Gonorrhœa.	Primary Sores.	Secondary Syphilis.	Gonorrhœa.	Primary Sores.	Secondary Syphilis.	Gonorrhœa.
1860-63, no Act in force	129·8	39·9	134·6	116·3	30·5	116·1	120·6	31·6	112·1
1874-79, stoppage of pay in hospital........	38·7	23·0	67·6	71·5	31·0	72·9	97·4	38·8	63·3
Difference between 1860-63 and 1874-79	91·1	16·9	67·0	44·8	+ ·5	43·2	23·2	+ 72	48·8
Percentage of fall or rise	− 70	− 42	− 50	− 38	+ 1	− 37	− 19	+ 23	− 44
Increased percentage fail under stoppage of pay	+ 10	+ 7	− 25	+ 12	+ 11	+ 19	+ 9	+ 23	+ 8

Here the increased fall after stoppage of pay came into force was 10, 12, and 9 per cent. for primary sores, in the three classes of stations respectively. In secondary syphilis the additional decline under the Acts was 7 per cent.; on the other hand, at all the stations never under them there was an increase of 11 per cent., and at fourteen never under them of 23 per cent. For gonorrhœa there were 25 per cent. fewer treated under the stoppage of pay at the stations under the Acts; at all the stations never under them they were 19 per cent. fewer; and at the fourteen stations never under them 8 per cent. fewer.

In the next period, 1880-82, whilst compulsory examination remained in force (this was stopped in May, 1883), the following changes occurred :—

Periods.	At 14 Stations under Acts.			At all Stations never under Acts.			At 14 Stations never under Acts		
	Primary Sores.	Secondary Syphilis.	Gonorrhœa.	Primary Sores.	Secondary Syphilis.	Gonorrhœa.	Primary Sores.	Secondary Syphilis.	Gonorrhœa.
1860-63, no Act in force	129·8	39·9	134·6	116·3	30·5	116·1	120·6	31·6	112·1
1880-82, stoppage of pay terminated	75·6	26·6	99·0	123·0	32·5	110·4	175·9	38·9	128·4
Difference between 1860-63 and 1880-82	54·2	13·3	35·6	+ 6·7	+ 2·0	5·7	+ 55·3	+ 7·3	+ 16·3
Percentage of rise and fall	42	33	26	+ 6	+ 7	5	+ 23	+ 23	+ 15

While the strong epidemic influence, in operation during this period, raised admissions at all the stations never under the Acts as high as they were in 1860-63, and at the fourteen stations never under them much higher, the repressive action of the compulsory examination at the subjected stations, though it could not prevent an increase of the low ratios previously found at them, still retained them for the three years at nearly the same elevation, and much below the ratios found in the other two groups.

The period 1883-84 only now remains to be considered. As already mentioned, the personal examination was suspended in May, 1883, and for the remainder there was little to prevent the disease, at the fourteen stations which had previously been under the Acts, assuming the frequency it had presented before 1863, save that the various hospitals remained open for the treatment of such females as chose to avail themselves of them. The results were as follow:—

Periods.	At 14 Stations under Acts.			At all Stations never under Acts.			At 14 Stations never under Acts.		
	Primary Sores.	Secondary Syphilis.	Gonorrhœa.	Primary Sores.	Secondary Syphilis.	Gonorrhœa.	Primary Sores.	Secondary Syphilis.	Gonorrhœa.
1860-63, Acts not in force	129·8	39·9	134·6	116·3	30·5	116·1	120·6	31·6	112·1
1883-84, Acts gradually terminating	123·9	25·4	100·1	118·3	32·7	109·4	174·0	46·8	135·1
Difference between 1860-63 and 1883-84 ...	5·9	14·5	34·5	+ 2·0	+ 2·2	+ 3·7	+ 53·4	+ 15·1	+ 23·0
Percentage of difference	4	36	26	+ 2	+ 7	+ 3	+ 44	+ 48	+ 21

The following facts will enable the beneficial assistance derived from the hospitals after May, 1883, to be estimated approximately. The admissions of females into these in the three years 1880-82 differed very little, and their means were:—

	Primary Sores.	Secondary Syphilis.	Gonorrhœa.
Mean admissions, 1880-82	994	676	1,899
Admissions in 1883, including those before May	710	502	845
Admissions in 1884	288	375	291

Under these circumstances the primary sores among the troops rose to within 4 per cent. of their number in 1860-63, though the secondary syphilis remained 36 per cent. below the former rate, and gonorrhœa 26 per cent. below it. In this last period the admissions at the stations never under the Acts, taking them as a whole, resulted in the same frequency, practically, as they had presented in 1860-63. But, separating the fourteen stations never under the Acts, the admissions for primary sores at them were 44 per cent. higher than they were in 1860-63; those for secondary syphilis, 48 per cent. more frequent; and those for gonorrhœa, 21 per cent. The enormous numbers who came under treatment for primary sores at some of the stations since 1880 deserve notice. Thus the ratio per 1,000 of admissions for primary venereal sores was:—

In 1880, at Belfast........	273, and above 200 at another three
,, '81, at Sheffield	279, ,,
,, '82, at Dublin........	304, and above 200 at another two
,, '83, ,, ...	265, London and Manchester showing same ratio
,, '84, ,, ...	260, and two other places above 200

The separation of the stations into three groups has not been continued since 1884, and the diseases among the troops are all brought into one general return. These are given from 1885 to 1889 in Table III B. These show the ratio per 1,000 of admissions for the three forms of disease to have been in 1885, as compared with 1860:—

	Primary Sores.	Secondary Syphilis.	Gonorrhœa.
In 1860. Ratio per 1,000 of admissions	140	36	133
In 1885. Ratio per 1,000 of admissions	127	27	121

which, as they are for single years only, approach nearer than might scarcely have been anticipated. What is remarkable, also, is that, in both instances, there should have been a considerable fall in the following four years, and that in each the amount of this has not been very different. Thus the ratios per 1,000 were:—

	1860 to 1864.			1885 to 1889.		
	Primary Sores.	Secondary Syphilis.	Gonorrhœa.	Primary Sores.	Secondary Syphilis.	Gonorrhœa.
	140	34	133	127	27	121
	101	37	110	84	36	93
	39	+ 3	23	43	+ 9	28
A percentage of	− 28	+ 9	− 17	− 34	+ 33	− 23

As the Act of 1864 was promulgated late in that year, and could have had no sensible influence on the admissions, the changes indicated by these figures are deserving of special notice.

In Table IV will be found an abstract of the numbers under treatment in hospital, daily, among the troops in the United Kingdom, for primary sores, and secondary syphilis, at the fourteen stations under the Acts, and at all those never under them, arranged for the same periods as in Table III, and their ratios per 1,000. From this it is seen that the daily sick in—

	Fourteen Subjected Stations.		All Stations never under Acts.	
	Primary Sores.	Secondary Syphilis.	Primary Sores.	Secondary Syphilis.
In 1860-63	9·27	2·95	8·11	2·61
,, '70-73	4·34	1·62	7·07	2·09
	4·93	1·33	1·04	0·52
Showing reductions of	53 per cent.	45 per cent.	13 per cent.	20 per cent.

The operation of stoppage of pay, between 1874 and 1879, led to the further reduction of the admission for primary sores to—

2·87 1·83 4·79 2·21

though with some increase of secondaries to a slight extent in both groups; the explanation of which is that the stoppage of pay was imposed on men affected with the primary affections, and did not extend to those under treatment for the secondary disease. The numbers under treatment daily for secondary syphilis, at the two groups of stations, since 1880, are not given separately, but those for primary sores are available to 1884. These show a very large increase at the fourteen unsubjected stations in 1880-82, with a still further one in 1883-84; while at the stations under the Acts in the former period, during the continuance of the personal examination there was a much smaller rise; but in the latter, when hospital treatment was open to voluntary applicants alone the ratio was nearly doubled. These remarks confirm the conclusions arrived at from the discussion of the admissions under the varying conditions the men were subjected to during the different periods embraced in this paper.

During the sittings of the Select Committee on the C.D. Acts in the House of Commons, the question of the relative frequency of infecting and simple sores arose several times; this can be ascertained only by finding how many cases of constitutional disease follow the primary sores, observed among a large number of persons under observation for a lengthened period; thus it was found that from 1861 to 1872, inclusive, the admissions for primary sores among the troops in the United Kingdom, were 73,238, and those for secondary syphilis 24,742, or 1 case of secondary in 2·95 primary cases. Subsequent returns, embracing some men omitted in those just referred to, raised the admissions to 90,915 and 27,807, which gives 1 case of secondary per 3·27 primary sores; but two sources of uncertainty present themselves here, viz., in how many instances have the constitutional affection been obviated by the treatment of the primary affection, and how far does the relative frequency of the infecting and non-infecting sores vary at the same place from year to year, or every few years. It is well known that the diagnosis of the constitutional forms of syphilis has been much improved of late years, and it may be, partly at least, that the explanation of the very low ratios of secondary disease mentioned above was due to the non-recognition of their slighter forms, or to their being attributed to another cause. Be that as it may, however, within the last five years, when there has been no obvious interference with the progress of the primary and constitutional forms of the disease, the ratio of the latter to the former has varied a good deal more than it should have done were the relative frequency of the infecting sores not materially altered. Table IIIB affords a good example of this; in that it may be seen that in 1885, with an admission rate of 127·4 per 1,000 for primary sores, that for secondary syphilis was 26·8 only; in 1887 these were respectively 107·5 and 42·6, and in 1889 85·5 and 35·7: the secondaries increasing very rapidly, while the primaries decreased, leading to the conclusion that the decrease was in the non-infecting sores.

Gonorrhœa has been but little commented on during the course of this investigation; but in general terms it may be stated that, though not responding so readily to the preventive aid of the Acts, it nevertheless ultimately was materially reduced under their operation.

The influence of the Acts on the prevalence of the different forms of venereal affections in the Royal Navy may now be considered. In the "Statistical Report on the Health of the Navy "for 1881," there is a table detailing the strength, and admissions, for primary venereal sores, and secondary syphilis, and gonorrhœa, year by year, from 1860 to 1881, in the various ships at the ports on the home station where the Acts were in force, and at those which were never under them. I have added the results for 1882, from the report of that year, to this table, so as to complete the period to that for the Army (Table III) already given.

The ports referred to are as under :—

Those which came under the Acts.	Those never under the Acts.
Dartmouth	Hull
Plymouth	Liverpool
Portsmouth	Kingston (Dublin)
Southampton	Greenock
Queenstown	Leith

The force was very unequally distributed between these groups, 87 per cent. of it being at places under the Acts, and 13 only at those never under them. The points of contact with the unprotected population being so few, and the numbers at them so limited, much greater irregularity must be looked for than was found in the army returns under such different conditions.

The Naval returns included primary venereal sores and secondary syphilis under the same heading from 1860 to 1865 inclusive, afterwards they were shown separately. It had been the practice in the Navy not to enter slight cases of gonorrhœa on the sick list, until the discussions on the Act arose, and attention was drawn to the subject, when instructions were issued for all to be included ; this seems to have taken place about 1870. Table V in the Appendix embodies the details for the twenty-three years 1860-82, arranged in a similar manner to Table III for the Army, but the conditions just mentioned will show that the analysis of the results cannot be expected to be so close as was found in the Army. To proceed on the same plan, however, the period 1860-63, before any restrictive measures were in force, may be compared with that of 1870-73, when they were in full operation ; 1864-69 being a transition period, may be omitted, as was done with the army. The following shows the relative frequency of primary sores and secondary syphilis taken together, and gonorrhœa, in the force under the Acts, and not under them, in the two periods :—

Period.	Under Acts.		Not under Acts.	
	Syphilis, Primary and Secondary.	Gonorrhœa.	Syphilis, Primary and Secondary.	Gonorrhœa.
1860-63, no Act in force	74·9	26·5	70·2	29·5
'70-73, Acts in full operation	45·6	62·0	106·8	50·4
Difference between 1860-63 and 1870-73	− 29·3	+ 35·5	+ 36·6	+ 20·9
Percentage of fall or rise	− 39	+ 134	+ 52	+ 71

Had the increase of 52 per cent. of the syphilitic disease at stations never under the Acts been due to greater epidemic incidence, the improvement under them would have amounted to

39 + 52, or 91 per cent. But, as shown by the Army returns, there was a sensible decrease of epidemic influence over the country in the latter period; and, in face of this, it is probable that the large increase of 52 per cent. was due to some of those irregularities presented by small numbers. All that can be proved by this comparison then is, that where the restrictive measures were in operation a material reduction of disease took place. As to gonorrhœa, the remarks made above obviate further comment.

In the next period, 1874-79, where the stoppage of pay deranged the admission rates in the Army, there was no such interference with those in the Navy. The results from Table V are as below:—

Period.	Under Acts.		Not under Acts.	
	Syphilis, Primary and Secondary.	Gonorrhœa.	Syphilis, Primary and Secondary.	Gonorrhœa.
1860-63, no Act in operation	74·9	26·5	70·2	29·5
'74-79, Acts in full operation	36·7	62·4	88·8	50·3
Difference between 1860-63 and 1874-79	– 38·2	+ 35·9	+ 18·6	+ 20·8
Percentage decrease or increase	– 52	+ 135	+ 26	+ 70

Here the percentage of reductions in the syphilis has increased from 39 in 1870-73 to 52 at the protected stations, but it has fallen from 32 at the former date to 26 at the latter, at those not under the Act, corresponding with what took place among the troops in duration, though not so closely in quantity.

In the years 1880-82 the following were the results:—

Period.	Under Acts		Not under Acts.	
	Syphilis, Primary and Secondary.	Gonorrhœa.	Syphilis, Primary and Secondary.	Gonorrhœa.
1860-63, no Act in operation	74·9	26·5	70·2	29·5
'80-82, compulsory examination still in force	53·4	75·4	148·9	69·6
Difference between 1860-63 and 1880-82	21·5	48·9	78·7	40·1
Percentage decrease or increase	– 29	+ 185	+ 112	+ 136

The decrease at the protected ports in 1880-82 as shown here was still 29 per cent. of that between 1860-63, notwithstanding the much greater prevalence of syphilis over the country at large, as is obvious from the military experience as well as that of the Navy, in the general Tables III and V for the respective services.

The naval returns did not give the force at the protected stations and at those never under the Acts separately after 1882, but the strength and admission for the whole force at home last year are given in Table Vb in the Appendix. From this it appears syphilis reached its highest point in 1884, the same year as in the army, though the ratios in the latter were much higher than in the former, being for primary sores 124·0 per 1,000, and for secondary syphilis 30·2, while for the navy they were 83·2 and 26·9 only. Subsequent to 1884 the disease diminished considerably though irregularly, but contrasting remarkably in these respects with the large and more regular fall in the Army.

Syphilitic affections are considerably more frequent among the troops than among the seamen at the protected stations, than would have been expected. Thus the admissions per 1,000 for primary venereal sores, secondary syphilis, and gonorrhœa, were at these stations for the undermentioned periods :—

Periods.	In Army.			In Navy.		
	Primary Sores.	Secondary Syphilis.	Gonorrhœa	Primary Sores.	Secondary Syphilis.	Gonorrhœa.
1870–73…………	52·5	20·3	100·3	32·6	13·0	62·0
'74–79…………	38·7	23·0	67·6	26·9	9·8	62·4
'80–82…………	75·6	26·6	99·0	38·7	14·7	75·4

This immunity may be due, in part at least, to the seamen living on board ship a large portion of their time, and so less exposed to sources of infection than soldiers, who are always on shore, and possibly, to some extent, to their employing ablution earlier after such exposure than is customary among soldiers. Under any circumstances it is worthy of note.

The progress of syphilis among the civil population is a matter of much interest, but authentic information upon it is very limited. The returns of the registrar-general give the deaths from this form of disease, but the general impression seems to be that these are frequently attributed to some other disease, and that the record is therefore very imperfect. Be this as it may, there is, at present, no other source of information suitable as a basis for statistical investigation save the records preserved in his annual reports. Table VI in the Appendix gives the population, with the deaths from syphilis (in both sexes and at all ages) among them, taken from these, for every year from 1860 to 1889, from which it appears 56,551 persons died of this disease, 41,828 of whom were children under one year of age; of the remainder, 3.955 were between 1 and 5 years of age, and 10,768 above 5 years, being respectively very nearly 74·7 and 19 per cent. of the whole. As the deaths among young children constitute so large a portion of the mortality from syphilis, a separate column has been added to the table, giving the births each year, with the deaths of infants under 1 year, with their ratios per 1,000, which show the fluctuations from year to year more plainly than the ratios per million adopted for the whole population.

Forty to fifty years ago the diagnosis of constitutional syphilis was by no means so well understood as it has since become; and during the period of transition the returns show traces of this in gradually increasing ratios per 1,000, without any intermediate falls. Thus in the second part of Table VI the deaths among children under 1 year give a ratio of 1·12 in 1860, then rise gradually to 1866, when it amounted to 1·57. In 1867 the ratio was 1·62 per 1,000, and from this year until 1889 it fluctuated between that and 1·99, there having been no less than four occasions when it fell below 1·70, with intermediate waves of varying amounts. The mean ratio for the whole thirty years is 1·69 per 1,000, but if the years up to 1866 inclusive be omitted, there remain 19.710,458 births, among which 34,989 deaths from syphilis occurred within the year, or 1·78 per 1,000, which represents the mean state, when confined to its normal limits, more correctly. During these years the ratio was constantly fluctuating, having been under 1·78 on twelve occasions, and at or above it on eleven. The great wave which caused the Military and Naval returns to increase so rapidly, and which culminated in these in 1883 and 1884, is also well marked here, and the abrupt fall to 1888 and 1889 equally so.

Table VII gives the distribution of the deaths from syphilis among the civil population of the different divisions of the Registrar-General, which have been arranged so as to throw the whole country into five continuous groups, the metropolis forming one of them, the period being for the six quinquenniads from 1860 to 1889. The first of these quinquenniads, being a transition one, may be passed over here as affording no secure basis for generalisation. The second, 1865-69, embraces the first introduction of the Contagious Diseases Acts, and with those that follow enables the influence of these Acts on the frequency of deaths from syphilis to be traced. The deaths per million living in each of these groups in the respective quinquenniads were as under:—

Periods.	England and Wales.	Districts.				
		I.	II and V.	III, IV, and VI.	VII and XI.	VIII, IX, and X
1865-69	80	144	68	67	44	85
'70-74	80	127	62	72	49	88
'75-79	85	128	60	77	58	97
'80-84	84	127	55	75	56	96
'85-89	73	112	55	61	51	83

It is apparent from these numbers the beneficial action of the Contagious Diseases Acts had not been confined to the troops and seamen, but had reduced the mortality from syphilis among the civil population in the districts where they came into operation, to a material extent since 1870. Ten of the twelve protected stations in England are in the counties south of the Thames and Bristol Channel, constituting the II and V divisions of the Registrar-General; one station, Woolwich, is in the I or metropolitan division, and one, Colchester, in the IV division. Taking the quinquenniads 1865-69, 1870-74, and 1875-79, the mortality at all ages from syphilis in the II and V divisions was 68 per million living in the first period, declining to 62 in the second, and to 60 in the third, a reduction of 12 per cent. In the III, IV, and VI divisions, extending from the east coast to the Welsh border, immediately north of the II and V, the mortality from syphilis in 1865-69 was 67 per million, almost the same as in the two southern divisions, but instead of falling in the next quinquenniad it rose to 72, and to 77 in the following one, a rise of 15 per cent. In the next group to the north comprising the VII and XI divisions, the deaths from syphilis in 1865-69 were 44 per million, rising to 49 in the following quinquenniad, and to 58 in 1875-79, a rise of 32 per cent. In the remainder of England to the north the deaths rose from 85 in 1865-69, to 88 in the succeeding period, and to 97 in 1875-79, an increase of 14 per cent. London presented the only exception to the general rise; this, with the neighbouring county comprised in the I division, had a mortality of 144 per million from syphilis in 1865-69; this fell to 127, or 12 per cent., in 1870-75, and virtually remained at the same rate. These facts point clearly to the influence of the Contagious Diseases Acts having diminished materially the mortality from syphilis, not only in the immediate localities where they were enforced, but to a large distance around them, while in London there had been a smaller reduction, and in the rest of the country a very marked increase. In the quinquenniad 1880-84 there were indications of a commencing change which went on to the great decrease observed in the country generally in 1885-89, and in every group of divisions as well. The fall in 1880-84 was much accelerated in the II and V divisions, where the compulsory examination was continued until May, 1883.

APPENDIX.

Table I.—*Aggregate Strength, with the Admissions for Primary Syphilis, Simple Venereal Sores, and Secondary Syphilis, among the Dragoon Guards and Dragoons, the Foot Guards, and Infantry of the Line, Serving at Home, with their Ratios per* 1,000, *for the undermentioned Periods.*

Dragoon Guards and Dragoons.

Periods.	Strength.	Admissions.			Ratios per 1,000.		
		Primary Syphilis.	Simple Sores.	Secondary Syphilis.	Primary Syphilis.	Simple Sores.	Secondary Syphilis.
1830-37	44,611	1,415	2,144	339	31·7	48·1	7·6
'37-46	54,374	1,396	2,920	467	25·7	53·7	8·6
'60-64	46,130	5,482	26	2,108	118·8	0·6	45·7

Foot Guards.

Periods.	Strength.	Admissions.			Ratios per 1,000.		
		Primary Syphilis.	Simple Sores.	Secondary Syphilis.	Primary Syphilis.	Simple Sores.	Secondary Syphilis.
1830-37	—		No return available				
'37-46	40,170	4,769	883	536	118·7	22·0	13·3
'60-64	24,229	3,699	30	811	153·7	0·3	33·5

Infantry of Line.

Periods.	Strength.	Admissions.			Ratios per 1,000.		
		Primary Syphilis.	Simple Sores.	Secondary Syphilis.	Primary Syphilis.	Simple Sores.	Secondary Syphilis.
1830-37	—		No return available				
'37-46	100,103	6,157	13,380	2,092	61·5	133·7	20·9
'60-64	126,534	13,497	36	4,048	106·8	0·3	32·0

Table II.—*Return of Primary Venereal Sores, and Gonorrhœa, among Dragoon Guards and Dragoons in United Kingdom.**

Years.	Strength.	Admissions to Hospital for		Ratios per 1,000.	
		Primary Venereal Sores.	Gonorrhœa.	Primary Sores.	Gonorrhœa.
1830	6,402	458	383	72	60
'31	6,018	579	374	96	62
'32	6,408	512	343	80	54
'33	6,379	607	363	95	57
'34	6,261	504	294	81	47
'35	5,902	442	289	75	49
'36–37............	7,241	457	403	63	56
'37–38............	5,506	342	377	62	69
'38–39............	5,060	373	392	74	77
'39–40............	5,267	432	392	82	74
'40–41............	5,330	326	323	61	61
'41–42............	5,309	371	350	70	66
'42–43............	4,995	391	348	78	70
'43–44............	5,335	577	327	108	61
'44–45............	6,225	578	474	93	76
'45–46............	5,864	466	392	79	67
'46–47............	5,483	460	350	84	64
Sums	98,985	7,875	6,174	—	—
Means	5,823	463	363	79·5	62·3

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* "Statistical Reports on the Sickness, Mortality, and Invaliding among the "Troops in the United Kingdom, the Mediterranean, and British America from "1830 to 1837," p. 25, and from 1837 to 1847, p. 58.

TABLE II—*Contd. Return of Primary Venereal Sores, and Gonorrhœa, among Foot Guards in United Kingdom.**

Years.	Strength.	Admissions to Hospital for		Ratios per 1,000.	
		Primary Venereal Sores.	Gonorrhœa.	Primary Sores.	Gonorrhœa.
1830	No return for these years				
'31					
'32					
'33					
'34					
'35					
'36-37					
'37-38	4,502	481	265	107	59
'38-39	3,010	431	119	143	40
'39-40	3,234	408	307	126	95
'40-41	3,246	434	226	134	70
'41-42	3,180	488	203	153	64
'42 43	3,227	486	247	151	77
'43-44	4,879	1,060	222	217	45
'44-45	4,996	674	183	135	37
'45-46	4,931	690	183	140	37
'46-47	4,915	500	243	102	49
Sums	40,120	5,652	2,198	—	—
Means	4,012	565	220	140·8	54·8

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* "Statistical Reports on the Sickness, Mortality, and Invaliding among the "Troops in the United Kingdom, the Mediterranean, and British America from "1837 to 1847," p. 60.

Table III.—*Annual Strength and Admissions for Primary Venereal Sores, Secondary*
Ratios per 1,000

Periods.	Stations which came under Contagious Diseases Acts.							All Stations never			
	Strength.	Admissions for			Ratio per 1,000.			Strength.	Admissions for		
		Primary Sores.	Secondary Syphilis.	Gonorrhœa.	Primary Sores.	Secondary Syphilis.	Gonorrhœa.		Primary Sores.	Secondary Syphilis.	Gonorrhœa.
1860	57,479	8,405	2,157	7,966	146	38	139	40,224	5,291	1,160	4,998
'61	51,328	7,267	2,077	7,133	142	40	139	37,627	4,577	1,103	4,063
'62	45,322	5,314	1,874	6,283	117	41	139	32,851	3,264	949	3,925
'63	43,419	4,653	1,774	5,202	107	41	120	32,526	3,521	1,150	3,638
Sums and ratios	197,548	25,639	7,882	26,584	129·8	39·9	134·6	143,228	16,653	4,362	16,624
1864	40,694	4,135	1,631	4,803	102	40	118	32,558	3,297	1,087	3,252
'65	43.078	4,077	1,344	4,937	95	31	115	29,921	2,956	931	3,373
'66	39,476	3,444	1,138	4,573	87	29	116	30,816	2,594	806	2,993
'67	39,911	3,640	1,259	5,274	91	32	132	33,509	3,367	932	3,946
'68	42,595	3,533	1,354	5,685	83	32	133	35,666	3,370	1,230	4,061
'69	42,017	2,765	1,091	4,468	66	24	106	31,747	3,366	954	3,431
Sums and ratios	247,771	21,594	7,817	29,738	87·1	31·5	120·0	194,217	18,950	5,940	21,056
1870	41,580	2,268	996	4,081	55	24	98	33,734	3,134	937	3,195
'71	54,096	2,763	932	6,254	51	17	116	38,571	3,122	1,035	3,969
'72	50,794	2,752	1,045	5,280	54	20	104	41,424	3,736	1,178	4,013
'73	48,039	2,420	969	3,946	50	20	82	40,918	3,307	1,096	3,508
Sums and ratios	194,509	10,203	3,942	19,561	52·5	20·2	100·3	154,647	13,299	4,246	14,685
1874	48,136	2,039	1,074	2,968	42	22	62	38,701	2,555	1,052	2,596
'75	48,006	1,717	1,185	2,825	35	24	58	39,541	2,374	1,352	2,488
'76	48,620	1,622	1,121	3.302	33	23	68	38,073	2,412	1.217	2,642
'77	52,422	1,809	1,060	3,585	35	20	68	39,721	2,690	1,131	3,376
'78	55,813	2,235	1,222	4,352	40	22	78	45,316	3,970	1,469	3,144
'79	42,646	2,005	1,136	2.939	47	27	69	38,054	3,108	1,205	3,218
Sums and ratios	295,643	11,427	6,798	19,971	38·7	23·0	67·6	239,406	17,109	7,426	17,464
1880	44,026	3,280	1,331	4,387	74	30	100	39.869	4,756	1,225	4.543
'81	39,558	2,920	1,067	3,821	74	27	97	45,184	5,673	1,536	4,840
'82	41,783	3,275	940	4,199	78	22	100	45,064	5,582	1,473	4,990
Sums and ratios	125,367	9,475	3,338	12,407	75·6	26·6	99·0	130,117	16,011	4,234	14,373
1883	38,089	4,172	961	3,788	110	25	99	43,588	5,339	1,369	4,785
'84	37,859	5,235	970	3,818	138	26	101	45,276	5,175	1,538	4,944
Sums and ratios	75,943	9,407	1,931	7,606	123.9	25·4	100·1	88,864	10,514	2,907	9,729
Total and ratios	1,136,786	87,745	31,708	115,507	77·2	27·9	101·7	950,479	92,534	29,115	93,931

* The annual details in this table are taken from a return from the Army Medical Department
giving the admissions into the female hospitals, from

*Syphilis, and Gonorrhœa, among the Troops in the United Kingdom, together with the of Strength.**

under Acts.			Fourteen Stations never under Acts.							Periods.
Ratio per 1,000.			Strength.	Admissions for			Ratio per 1,000.			
Primary Sores.	Secondary Syphilis.	Gonorrhœa.		Primary Sores.	Secondary Syphilis.	Gonorrhœa	Primary Sores.	Secondary Syphilis.	Gonorrhœa.	
131	29	124	22,900	3,058	459	2,671	134	20	117	1860
122	29	108	22,893	2,888	747	2,322	126	33	101	'61
99	29	120	19,781	2,031	691	2,437	103	35	123	'62
108	35	112	20,119	2,357	805	2,177	117	40	108	'63
116·3	30·5	116·1	85,693	10,334	2,704	9,607	120·6	31·6	112·1	Sums and ratios
101	33	100	19,987	2,455	729	2,025	123	37	101	1864
99	31	113	19,482	2,156	586	2,355	111	30	121	'65
84	26	97	19,835	1,945	503	1,985	98	25	100	'66
101	28	118	20,589	2,372	540	2,670	115	26	130	'67
95	34	114	19,486	177	683	2,236	109	35	115	'68
106	30	108	17,739	2,273	622	1,428	128	35	81	'69
97·6	30·6	108·4	117,118	13,331	3,663	12,699	133·9	31·3	108·4	Sums and ratios
93	28	95	17,852	2,022	555	1,367	113	31	76	1870
81	27	103	19,951	1,865	592	1,383	93	30	69	'71
90	28	97	19,950	2,457	684	1,445	123	34	72	'72
81	27	86	19,801	2,025	632	1,367	102	32	69	'73
86·0	27·4	95·0	77,554	8,369	2,463	5,551	107·9	31·8	71·6	Sums and ratios
66	27	67	18,879	1,661	644	1,043	88	34	55	1874
59	34	63	19,573	1,552	827	996	79	42	51	'75
64	32	69	18,790	1,554	745	834	82	39	44	'76
68	28	85	19,076	1,730	693	1,295	91	36	68	'77
88	32	69	20,749	2,723	874	1,401	131	42	68	'78
82	32	84	18,058	1,943	691	1,719	127	38	95	'79
71·5	31·0	72·9	115,125	11,209	4,473	7,288	97·4	38·8	63·3	Sums and ratios
119	31	114	18,054	3,010	668	2,305	166	37	127	1880
125	34	107	19,643	3,559	804	2,403	181	41	123	'81
124	33	110	19,449	3,481	739	2,618	179	38	135	'82
123·1	32·6	110·5	57,146	10,050	2,211	7,326	175·9	38·9	128·4	Sums and ratios
122	31	110	18,274	3,441	810	2,443	188	44	134	1883
114	34	109	18,635	2,980	916	2,542	160	49	137	'84
118·3	32·7	109·4	36,909	6,421	1,726	4,985	174·0	46·8	135·1	Sums and ratios
97·4	30·6	98·8	489,535	59,774	17,240	47,456	122·0	35·2	96·9	Total and ratios

to House of Commons, dated 31st July, 1885, signed T. Crawford, D.G., and with another War Office, ordered to be printed 6th August, 1885.

TABLE III B.—*The Strength, and Admissions for Primary Venereal Sores, Secondary Syphilis, and Gonorrhœa, among the whole Troops in United Kingdom, from* 1885 *to* 1889 *inclusive.*

Year.	Strength.	Primary Sores.	Secondary Syphilis.	Gonorrhœa.	Ratios per 1,000.		
					Primary Sores.	Secondary Syphilis.	Gonorrhœa.
1885...........	87,105	11,095	2,336	10,561	127·4	26·8	121·2
'86	92,601	11,002	3,097	10,632	118·8	33·5	144·8
'87...........	101,114	10,862	4,311	10,417	107·5	42·6	103·0
'88...........	101,695	9,479	4,095	9,268	93·2	40·3	91·1
'89...........	100,790	8,414	3,601	9,362	83·5	35·7	92·9
Sums and means....	483,305	50,652	17,440	50,240	104·8	36·1	104·9

TABLE IV.—*Numbers under Treatment in Hospital, Daily, among the Troops in the United Kingdom, for Primary Venereal Sores, and Secondary Syphilis, at the Fourteen Stations which came under the Acts, and at all the Stations never under them, with their Ratios per* 1,000 *of Mean Strength.*

Periods.	Fourteen Stations under Acts.				All Stations never under Acts.			
	Under Treatment Daily.		Ratios per 1,000.		Under Treatment Daily.		Ratios per 1,000.	
	Primary Sores.	Secondary Syphilis.	Primary Sores.	Secondary Syphilis.	Primary Sores.	Secondary Syphilis.	Primary Sores.	Secondary Syphilis.
1860–63	1,834	582	9·27	2·95	1,161	374	8·11	2·61
'64–69	1,632	581	6·59	2·35	1,416	449	7·29	2·31
'70–73	845	316	4·34	1·62	1,093	323	7·07	2·09
'74–79	848	542	2·87	1·83	1,148	528	4·79	2·21
'80–82	742	—	5·91	—	738*	—	12·93	—
'83–84	800	—	10·50	—	558*	—	14·98	—

* These two numbers are those for the fourteen stations never under the Acts, and have to be divided by the strength for the periods in the third division of Table III instead of the second, as the heading to this table would indicate. The numbers remaining under treatment for secondary syphilis are not given in the Army Medical reports for the stations under the Acts, and never under them from 1880.

The above table is condensed from No. 2 in Appendix to "Report from the "Select Committee on Contagious Diseases Acts, 1881," p. 446, Parliamentary Paper.

TABLE V.—ROYAL NAVY. *Showing the Strength, and the Admissions for Primary Venereal Sores, Secondary Syphilis, and Gonorrhœa, at the Stations which came under the Acts, and at those never under them, from* 1860 *to* 1882, *with their Ratios per* 1,000 *of Strength.*

Periods.	Stations which came under Acts.						
	Strength.	Admissions for			Ratios per 1,000.		
		Primary Sores.	Secondary Syphilis.	Gonorrhœa.	Primary Sores.	Secondary Syphilis.	Gonorrhœa.
1860	7,560	481		150	63·6		19·8
'61	9,195	613		241	66·7		26·2
'62	9,345	795		288	85·1		30·8
'63	10,210	830		285	81·3		27·9
Sums and ratios	36,310	2,719		964	74·9		26·5
1864	9,880	1,055		196	106·8		19·8
'65	10,140	840		253	82·8		25·0
'66	10,945	510	171	159	46·6	15·6	14·5
'67	10,300	338	104	154	32·8	10·1	15·0
'68	10,445	322	154	281	30·8	14·7	26·9
'69	9,980	311	124	329	31·2	12·4	33·0
		1,895					
Sums and ratios	61,690	1,481	553	1,372	63·7		22·2
1870	9,690	314	95	534	32·4	9·8	55·1
'71	11,260	313	135	630	27·8	12·0	56·0
'72	11,475	413	160	832	36·0	13·9	72·5
'73	11,315	388	177	716	34·3	15·6	63·3
Sums and ratios	43,740	1,428	567	2,712	32·6	13·0	62·0
1874	11,155	337	129	709	32·2	11·6	63·6
'75	10,660	251	98	639	23·5	9·2	59·1
'76	10,615	255	83	653	24·0	7·8	61·5
'77	11,280	291	112	619	25·8	9·9	54·1
'78	11,000	264	83	673	24·0	7·5	61·2
'79	10,950	366	137	801	33·4	12·5	73·2
Sums and ratios	65,660	1,764	642	4,094	26·9	9·8	62·4
1880	11,510	411	134	830	35·7	11·6	72·1
'81	11,535	442	155	804	38·3	13·4	69·7
'82	9,845	421	194	846	42·8	19·7	85·9
	32,890	1,274	483	2,480	38·7	14·7	75·4
		4,614			81·9*		
Totals and ratios	240,290	5,947	2,245	11,622	32·3*	12·2	48·4

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* These ratios are obtained by dividing 4,614, the sum of the primary and secondary cases under the Acts for 1860-65, by 56,330, the strength for these years, and 5,947 and 2,245, the numbers of these cases respectively for 1866-82, by 183,960, the strength for that period.

Table V *Contd.*—Royal Navy. *Showing the Strength, and Admissions for Primary Venereal Sores, Secondary Syphilis, and Gonorrhœa.*

Periods.	Stations never under Acts.						
	Strength.	Admissions for			Ratios per 1,000.		
		Primary Sores.	Secondary Syphilis.	Gonorrhœa.	Primary Sores.	Secondary Syphilis.	Gonorrhœa.
1860	1,705	100		43	58·7		25·2
'61	1,590	115		49	72·3		30·8
'62	1,660	89		39	53·6		23·5
'63	1,725	165		66	95·7		38·3
Sums and ratios	6,680	469		197	70·2		29·5
1864	1,525	170		39	111·5		25·6
'65	1,555	139		42	89·4		27·0
'66	1,435	74	25	26	51·6	17·3	18·1
'67	1,770	99	44	63	55·9	24·9	35·6
'68	1,630	91	39	50	55·8	23·9	30·7
'69	1,750	110	31	78	62·9	17·7	44·6
		309					
Sums and ratios	9,665	374	139	298	85·0		30·8
1870	1,605	110	70	82	68·5	43·6	51·1
'71	1,650	124	67	71	75·2	40·6	43·0
'72	1,765	127	77	115	72·0	43·6	65·2
'73	1,925	122	45	82	63·4	23·4	42·6
Sums and ratios	6,945	483	259	350	69·5	37·3	50·4
1874	1,790	117	26	76	65·4	14·5	42·4
'75	1,845	135	25	126	73·2	13·5	68·3
'76	1,880	123	31	71	65·4	16·5	37·8
'77	1,895	114	20	101	60·2	10·5	53·3
'78	695	82	10	28	118·0	14·4	40·3
'79	1,015	106	21	57	104·1	20·7	56·2
Sums and ratios	9,120	677	133	459	74·2	14·6	50·3
1880	1,045	142	28	74	135·9	26·8	70·8
'81	990	104	39	65	105·0	30·9	65·6
'82	940	96	34	68	102·1	36·2	72·3
	2,975	342	101	207	115·0	33·9	69·6
		778			79·7*		
Totals and ratios	35,385	1,876	632	1,511	73·2*	24·7*	42·7

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* Similarly at the stations never under the Acts, 778, the sum of the primary and secondary cases from 1860 to 1865, on a strength of 9,760, gives their conjoined ratio 79·7, and 1,876 and 632, on a strength of 25,625, from 1865 to 1882, give the ratios 73·2 and 24·7 respectively. From "Statistical Report on Health of the Navy, 1881-82."

TABLE VB.—ROYAL NAVY. *Showing the Mean Strength and Admissions for Primary Venereal Sores, Secondary Syphilis, and Gonorrhœa, in the Force on the Home Station from* 1883 *to* 1889 *inclusive, with their Ratios per* 1,000.

Years.	Strength.	Admissions for			Ratios per 1,000.		
		Primary Sores.	Secondary Syphilis	Gonorrhœa.	Primary Sores.	Secondary Syphilis.	Gonorrhœa.
1883	22,200	1,585	442	1,968	71·4	19·9	88·6
'84	18,570	1,545	499	1,613	83·2	26·9	86·9
'85	23,100	1,637	563	1,883	70·9	24·4	81·5
'86	21,800	1,512	449	1,691	69·4	20·6	77·6
'87	23,700	1,827	512	1,873	77·1	21·6	79·0 .
'88	24,000	1,515	558	1,824	63·1	23·3	76·0
'89	24,730	1,769	583	2,138	71·5	23·6	88·5
Sums and ratios	158,100	11,390	3,606	13,040	72·0	22·8	82·5

TABLE VI.—CIVIL POPULATION. *Deaths from Syphilis among the Civil Population in England and Wales (both Sexes and all Ages), with the Ratios per* 1,000,000 *Living; also the Deaths from Syphilis among Children (both Sexes) under* 1 *Year of Age, with their Ratios per* 1,000 *on the Births.*

Years.	Population—all Ages.			Children under 1 Year.		
	Population. [000's omitted.]	Deaths from Syphilis.	Ratios per 1,000.	Births.	Deaths from Syphilis.	Ratios per 1,000.
1860	19,903,	1,067	54	684,048	767	1·12
'61	20,119,	1,177	59	696,406	798	1·15
'62	20.371,	1,245	62	712,684	867	1·22
'63	20,626,	1,386	68	727,417	983	1·35
'64	20,884,	1,550	75	740,275	1,089	1·45
'65	21,145,	1,647	79	748,069	1,155	1·54
'66	21,410,	1,662	79	753,870	1,180	1·57
'67	21,678,	1,698	80	768,349	1,241	1·62
'68	21,949,	1,886	88	786,858	1,364	1·73
'69	22,223,	1,859	85	773,381	1,361	1·76
'70	22,501,	1,858	84	792,787	1,422	1·79
'71	22,789,	1,742	77	797,428	1,317	1·65
'72	23,096,	1,831	80	825,907	1,410	1·71
'73	23,409,	1,843	80	829,778	1,376	1·66
'74	23,725,	1,997	85	854,956	1,484	1·74
'75	24,045,	2,134	90	850,607	1,554	1·83
'76	24,370,	2,134	89	887,968	1,580	1·78
'77	24,700,	2,074	86	888,200	1,550	1·75
'78	25,033,	2,182	88	891,906	1,647	1·85
'79	25,371,	2,039	81	880,389	1,493	1·69
'80	25,714,	2,162	84	881,643	1,589	1·80
'81	26,062,	2,097	80	883,642	1,540	1·74
'82	26,414,	2,227	84	889,014	1,666	1·87
'83	26,771,	2,313	84	890,722	1,773	1·99
'84	27,132,	2,280	84	906,750	1,733	1·91
'85	27,409,	2,196	80	894,270	1,652	1·85
'86	27,871,	2,231	80	903,760	1,701	1·88
'87	28,247,	2,064	73	886,331	1,584	1·80
'88	28,629,	1,927	67	879,868	1,452	1·65
'89	29,016,	2,053	71	865,944	1,500	1·73
Sums and ratios	722,610	56,551	78	24,773,227	41,828	1·69

Population, births, and deaths, from registrar-general's returns.

TABLE VII.—CIVIL POPULATION. *Showing the Mean Population, and Deaths from Syphilis (both Sexes and all Ages) in Civil Life, in England and Wales in the Successive Quinquenniads from* 1860 *to* 1889, *with their Ratios in* 1,000,000 *Living; also their Distribution in the Groups of the Registrar-General's Division, specified in Tables for the corresponding Periods.*

[The population for the middle year of each quinquenniad has been taken as the mean for the period, and 000's are omitted.]

Periods.	Middle Year of each Period.	England and Wales.			I Division.			II and V Divisions.		
		Population. [000's omitted.]	Deaths.	Ratios per 1,000,000.	Population [000's omitted.]	Deaths.	Ratios per 1,000,000.	Population [000's omitted.]	Deaths.	Ratios per 1,000,000.
1860-64	1862	20,371,	1,285	63	2,857,	317	111	3,727,	221	59
'65-69	'67	21,678,	1,750	80	3,078,	412	144	3,907,	268	68
'70-74	'72	23,096,	1,854	80	3,319,	423	127	4,084,	252	62
'75-79	'77	24,700,	2,111	85	3,595,	462	128	4,231,	255	60
'80-84	'82	26,416,	2,216	84	3,893,	495	127	4,385,	242	55
'85-89	'87	28,247,	2,094	74	4,215,	472	112	4,546,	250	55

Periods.	Middle Year of each Period.	III, IV, and VI Divisions.			VII and XI Divisions.			VIII, IX, and X Divisions.		
		Population. [000's omitted.]	Deaths.	Ratios per 1,000,000.	Population. [000's omitted.]	Deaths.	Ratios per 1,000,000.	Population. [000's omitted.]	Deaths	Ratios per 1,000,000.
1860-64	1862	4,936,	241	49	2,629,	94	36	6,230,	411	66
'65-69	'67	5,186,	347	67	2,741,	119	44	6,766,	575	85
'70-74	'72	5,452,	394	72	2,874,	141	49	7,364,	644	88
'75-79	'77	5,742,	445	77	3,064,	177	58	8,062,	780	97
'80-84	'82	6,048,	453	75	3,267,	184	56	8,791,	841	96
'85-89	'87	6,376,	387	61	3,447,	179	51	9,632,	804	83

Note.—Details compiled and computed from data in registrar-general's returns.

DISCUSSION *on* INSPECTOR-GENERAL LAWSON'S PAPER.

DR. NEVINS said that the diagram which Dr. Lawson had so admirably drawn excited his envy. His own diagram was rough in comparison, but it would be found that their figures, practically speaking, were the same. He himself began with 1860, because then the annual reports of the army were first published regularly, and the amount of disease was so great that a commission was appointed by Lord Herbert, Secretary for War, which investigated the matter with the greatest care, and made recommendations with respect to sanitary arrangements of barracks and healthy occupations for the men, such as libraries, and so on, cricket and football, &c., to improve their condition. These recommendations began to be put in force as rapidly as the votes of the House of Commons would permit, and circumstances allowed. It was important to mention, that in 1860 the army was divided for sanitary purposes in the reports into camps. seaports, manufacturing towns, &c., as the conditions varied so much that the sanitary conditions of different sets of stations were likely to be different, and accordingly the army was divided into large camps, large seaports, and large dockyards; while London was put by itself, because there was nothing to compare with it. Dublin also was put by itself, and the large manufacturing towns were put by themselves, and also the battalion depôts—and the remainder of the less strongly characterised places. in which the rest of the army was distributed, were thrown together as "remaining stations." In these large camps, large seaports, and large dockyards the improvements recommended by Lord Herbert's Commission were pushed forward as rapidly as possible. When he (Dr. Nevins) was giving his evidence before the Select Committee of the House of Commons, he took out for every station for every year the whole work that had been done, and laid the result before the committee. Before the Act of 1866 important improvements, suggested by Lord Herbert's recommendations, had been carried out in thirty-five instances in the large camps, seaports, and dockyards, but in London and Dublin, and the fourteen subsequently non-subjected stations, only twenty important improvements were carried out. Coincident with those improvements an enormous fall in disease took place, which he represented by the black line in his diagram. The fall amounted to 28 per cent. in the large camps; to 33 per cent. in the seaports, and to 29 per cent. in the dockyards. In the large manufacturing towns the fall amounted to only 21 per cent., while London was worse than at the beginning, and Dublin was the worst of all on the average of the whole periods. The average annual fall in the stations afterwards put under the Acts amounted to 6·7 per cent. He had not mentioned the Act of 1864, because it was only in operation in four stations in all, and in these only for a short time, and there were no periodical examinations or compulsory detention in hospitals. The improvements recommended by Lord Herbert's Commission still continued to be carried out, and at a more rapid rate than before, for after the Act was passed there were forty-eight important improvements carried out in the camps, dockyards, and so on, but only twenty-three in the fourteen non-subjected stations. The whole of the camps, which had already improved 28 per cent., were then "selected" to be put under the Acts; the whole of the seaports, which had already improved 33 per cent., and two out of the three great dockyards, which had already improved 29 per cent., and five minor stations, which had shown no particular character previously, were also placed under the Acts for comparison with fourteen stations not under them. London, which had already fallen off, was taken, and Dublin, which was the worst of all; four of the largest manufacturing towns were also taken, and one dockyard and seven minor stations from the "remaining" numbers which had no particular character among them, and then the fourteen stations which had been so improved, by Lord Herbert's suggestions, were put forward as a fair comparison with the wretched seat of London, Dublin, and the large manufacturing towns, where vice and crime always seem to gravitate, and which had been left with only twenty-three instead of thirty-five of Lord Herbert's important improvements. Furthermore, in order to prevent disease being brought into the stations under the Acts by the men belonging to the fourteen stations under them, an army regulation was issued, though without any warrant from the Acts themselves, that the men coming into these subjected stations were to be examined to see whether they had disease before they were allowed to join their comrades, and if diseased were at once sent to hospital; but in the stations that were not under the Acts there was no such examination, and the men were allowed to bring in any amount of disease that they had contracted during their furlough. The first women they consorted with could go and spread it, and then the thing worked its vicious round. The question was asked before the Select Committee of the House of Commons, "why is this not applied to all the stations?" and the answer was, that a great experiment was going on, and every precaution must be taken to prevent its failing. These conditions continued for six years, and in the diagram Dr. Nevins showed Lord Herbert's improvements still going on, indicated by the black line, and he had indicated the additional influence of the Acts by red lines. The disease continued to fall, and naturally so, but instead of 6·7 per cent. yearly, it fell only 6·3 per cent. annually for the next six years; then it appeared that the army authorities were dissatisfied, and Lord Cardwell issued an order that all men suffering from primary disease should have their pay stopped. When that order came into force he (Dr. Nevins) had added a third line in his diagram, to indicate it in order to show the deterrent influence of stoppage of pay. Of course that prevented the men reporting themselves to the army doctors when they only had trifling cases, and they went to druggists instead. Then disease apparently fell in four years from 54 to 33 per 1,000, but then, in spite of the Acts and of punishment, it began to rise for three years, and it rose until the warrant was withdrawn. But it would be seen from the diagram that by 1879 the disease had risen to very nearly the same height as before concealment first took place in 1873. Then when concealment was put an end to a very large and rapid rise took place. The previous rise had been for three years in existence, and it continued for three years more, at the end of which time (1882) the disease was 78 per 1,000. There had been an improvement of only 9 per 1,000 among the men in the subjected stations during the whole sixteen years of the Acts. Then in the middle of 1883 the Acts were suspended, that was to say, the periodical examinations and the compulsory detention in hospital were put a stop to, and then there was a sudden rush of disease from 78 to 110 per 1,000, which excited great alarm in the House of Commons, and among the medical profession and the public. Questions were asked in the House of Commons over and over again, and Lord Hartington, who was the Secretary for War, answered that there were so many causes operating at the same time, that it was impossible to say to which of them the increase was due, but he especially mentioned the great amount of disease that the troops were bringing from Egypt. Those troops came back in 1883 and 1884 to England, and they brought back with them a large amount of disease. Was it then to the suspension of the Acts or to this imported disease that this great increase of disease in the home army was due? The fact was that in Gibraltar also, where the Acts were still in full force, the disease rose by above 90 per cent., and in Malta also, which had always been held out as the *beau ideal* of a protected place, the disease also increased by 76 per cent., while in the home army the increase was only 41 per cent. The fact was that the troops which were left at these places communicated their disease on the way, and the remainder brought the increase of disease with them into the home army. At the end of 1884 we start fair with an entire absence of Acts, and what was found to be the result? There was immediately a fall of disease, which continued without interruption till 1888. He had written to Mr. Stanhope and asked for the returns for 1889, but had not been able to obtain them, but it would be seen from Dr. Lawson's diagram that the fall still continued in 1889 without interruption, so that five years without the Acts showed that the disease had fallen from 138 to 82, or at the rate of above 8 per cent. yearly—a larger fall than at any previous period. He submitted, from these figures, that the application of the Acts, at first, did not increase the rate of improvement, and certainly did not prevent the increase of disease afterwards. He had taken his figures from the returns that were moved for, and granted by the House of Commons to Mr. Cavendish Bentinck, but they were limited to the fourteen stations under the Acts.

Dr. Lawson said that he took his figures from a return published by the House of Commons in June, 1885.

Dr. Nevins said that Mr. Cavendish Bentinck moved in 1888 and 1889 for returns of the amount of gonorrhœa and primary syphilis in the fourteen stations under the Acts, and it was from these more recent returns he had taken his figures.

Dr. Lawson said that was quite true.

Dr. Nevins pointed out that his table showed what the composition of those two sets of "selected" stations was, and how far they were capable of being compared one with another; but in 1875 the army report for the first time began to publish the amount of disease in other stations besides the fourteen selected ones not under the Acts. The home troops were distributed in about 130 stations. In addition to the fourteen "selected," there were about 100 more to which the Acts had never been applied, containing about 25,000 troops, which were distributed among these 100 stations throughout the whole country. In 1885 Mr. Stansfeld moved for a return of the amount of disease in these 100 previously discarded non-subjected districts. In one of the diagrams exhibited they would see that on the average of the whole period of the Acts the fourteen stations under them had a ratio of 80 per 1,000, but the 100 rejected stations, containing above half the non-subjected troops, had only 74 per 1,000: while the fourteen non-subjected stations "selected" for comparison had a ratio of 136. But no one could wonder that London, Dublin, and the large manufacturing towns had an enormous amount of disease. The fact was that if London, Dublin, and the large manufacturing towns were left out, the stations not under the Acts would show a very small amount of disease. Thus it would be seen that more than half of the army not under the Acts had had a smaller amount of disease than the fourteen stations that had been under the Acts for sixteen years.

Secondary disease had never in the army reports been divided into stations under the Acts and the stations not under the Acts. It was impossible to trace the origin of secondary disease to its actual source, as it does not appear until weeks or months after the original primary, so that Dr. Balfour, whose death they all lamented, said that it was no use having returns of secondary disease except for the whole army. In 1866 secondary disease had fallen to 24 per 1,000, at which date the Act was put in force, and in 1883, when the suspension of the Acts took place, the ratios for the whole sixteen years showed that the average over the whole period during which the Acts had been in force was higher by ·076 than when the Acts were passed. There was a sudden and entirely exceptional rise in 1887, followed by a fall the next year, and he was utterly unable to explain it. He had tried all manner of theories, but without success. Between 1884 and 1888 the amount of fall in primary sores was in Chatham 32 per cent., and yet secondary syphilis rose 86 per cent. Primary sores fell in Woolwich 38 per cent., but the secondary sores rose 41 per cent., and similar discrepancies existed throughout nearly all the subjected stations. He had no theory to account for such remarkable discrepancies, and could merely place the following table before the Society. Possibly Dr. Lawson might be able to suggest some explanation.

Discrepancies between Primary and Secondary Disease in the Fourteen Subjected Stations between 1884 *and* 1888, *the Acts being absent the whole time.*

Chatham	fell	in primary	32	per cent.,	yet	secondary	rose	86	per cent.
Woolwich		,,	38	,,		,,		41	,,
Aldershot		,,	47	,,		,,		53	,,
Colchester		,,	33	,,		,,		65	,,
Canterbury		,,	29	,,		,,		230	,,
Curragh		,,	62	,,		,,		9	,,
Plymouth	rose	,,	only 1·5	,,		,,		95	,,
Portsmouth	,,	,,	23	,,		,,		195	,,
Windsor	,,	,,	,, 55	,,		,,		118	,,
Shorncliffe	,,	,,	6·6	,,		,,		66	,,
Dover	fell	,,	26	,,		,,	fell only	4	,,
Winchester	,,	,,	42	,,	and	,,	,,	39	,,
Cork	,,	,,	27	,,	,,	,,	,,	20	,,
Maidstone fell totally. It had not a single case in 1888					,,	,,	,,	82	,,

Mr. Ernest Walford said that, not being a medical man, he had some diffidence in making any remarks, but Dr. Lawson had mentioned that from 1884, according to the Registrar-General's returns, there had been a decided falling off in syphilitic diseases in the country generally. He concluded that the Registrar-General's returns would show it in the form of deaths. Of course deaths from syphilis, either acquired by the individual or inherited, must have been acquired some years previously. For instance, a man who died in 1890 of syphilis must have caught the disease several years previously. Therefore, did not the falling off in the Registrar-General's return point to a decrease in primary syphilis during some years previous to 1884, and was it not an argument in favour of the Acts?

Dr. Fox said that, as a medical man, he felt some considerable amount of interest in this question, and on other grounds still more. There appeared to be some rather curious discrepancies, and yet both sides seemed to be in some degree substantiated by statistics. Some of the conclusions were not easy to understand. He himself had not gathered how it was explained that in Dr. Lawson's table there was that remarkable fall at the end after what appeared to him to be the improvement owing to this suspension of the Acts. Of course it was impossible not to feel that this was rather a moral than a statistical question, and that there were other ways of abating the evil which perhaps might be more successful than those that have been adopted—in the neglect of which such measures became requisite and must always be; and, although it was probably made out that the suspension of the Acts had done some good in a humanitarian point of view, some might regret the mere treating of soldiers or women as creatures as tending to degrade.

Mr. Bourne said they were all indebted to Dr. Lawson for the elaborate tables he had prepared, and also to Dr. Nevins, who had taken a different view of the question. He thought they might satisfactorily conclude one thing, viz., that the case in favour of the Acts had not been made out. Other causes might have been in operation at the same time as the Acts were in force, and it was not fair to compare all the results as due to the existence of the Acts. He gathered that the remarkable rise shown on the diagram was very much accounted for by the return of the troops from Egypt infected with disease. He felt assured that the whole question was still in a state of great ambiguity and uncertainty, but nothing whatever had been made out to justify the re-imposition of Acts which were repugnant to the feelings of the people as Englishmen, moralists, and Christians, and they were therefore emboldened to rely on moral and spiritual influences to effect the good they desired.

Mr. Shillitoe said that he could speak with some authority with regard to the present state of these diseases, he having been connected with the Lock Hospital for the last twenty-eight years.

During the last five or six years he had noticed a great increase in the severer forms of the disease, particularly amongst the women. Indurated sores are now much more frequently met with than formerly. One effect of the removal of the Contagious Diseases Acts is that the hospital authorities have now no power to keep the women in hospital until they are fit to be discharged. Women often come into the hospital, get partially relieved of the more painful symptoms, and then, regardless of the fact of their being in a highly infectious condition, insist upon going out; sometimes a batch of women, all of whom are more or less diseased, will agree to leave the hospital simultaneously, and however diseased they may be, they cannot be prevented. The effect of this is seen in the general increase of the disease throughout the country.

Sir RAWSON W. RAWSON thought it right to mention his experience of the operation of the Acts in Barbados. In 1869 or 1870 the Acts were brought into operation there, to the very great benefit of the community, the military, and the women themselves. It was his duty to keep a close watch upon the operation of the Acts, and occasionally to visit the hospitals, and he certainly thought it right to bear his testimony to the advantageous operation of the Acts there from 1870 to 1875.

Mr. J. B. MARTIN said he must apologise for intruding in the discussion, as this was a subject on which he had no knowledge or authority whatever, but as a statistician he wished to make one remark on the tables submitted to them. They could see the fall to which Dr. Nevins had called attention, from 148 to 67, during the six years when Lord Herbert's recommendations were in force; that was at an average of 6·7 per cent. per annum. During the next cycle there was the continued operation of Lord Herbert's recommendations, assisted by the operation of the Contagious Diseases Acts, and Dr. Nevins had pointed out that the fall was 6·3 as against 6·7; that was a very small difference. It seemed to him that in such a case one might reasonably expect that the fall would be more and more difficult to maintain in its ratio, that, except by the introduction of some new force, the fall would tend to diminish year by year. A third cycle was indicated by the violet line, when the motive of concealment came into play. From that point there was a rise to the period when the Act was abolished. The result of the observations to be deduced from these tables seemed to him to be that it was a great advantage that they had opposite views stated from a purely statistical standpoint, so as to enable the meeting to sift accurately the facts and phenomena which were brought under its observation.

Dr. LAWSON said it had been his lot to hear a great deal of the evidence on both sides of the question, and almost every word of Dr. Nevins's statements had come before him previously; on most occasions he had, he believed, refuted them, at all events to his belief satisfactorily, though apparently not so to Dr. Nevins.

Dr. Nevins had compared London, Dublin, and large manufacturing towns with places where there was no manufacturing. He maintained that that in this case was an error which no man of statistical knowledge would support. He had been frequently asked if he compared Manchester and Shorncliffe, but his answer was "no." In the group of stations never under the Act he compared Manchester at one period with Manchester at another, and similarly in the group under the Act, Shorncliffe with Shorncliffe. Dr. Nevins had attributed the amelioration after the introduction of the Acts, not to the Acts, but to measures of sanitation, &c., that were introduced after 1860; but to his own knowledge numbers of those things had been introduced twenty years before. Then Dr. Nevins was altogether wrong in supposing that those improvements were introduced at the camps chiefly or principally. Had the reduction of venereal affections from 1866 to 1873 been due to the sanitary measures then introduced at stations under the Acts, these same measures being continued and improved should have prevented their rise again subsequent to 1877; but they failed altogether to do it, and Dr. Nevins affords us no explanation why. A great deal had been said about the people who came home from Egypt in 1883 introducing the disease, but there was a very marked increase at home in 1879 and 1880, and what was the cause of that?

The PRESIDENT in closing the discussion intimated his intention to take no active part in the proceedings, beyond stating that in his opinion Inspector-General Lawson had fully proved his contention, and that he regarded the repeal of the Contagious Diseases Acts as disastrous in its consequences, particularly in India. He considered that it was the duty of the State to maintain its sea and land force in a condition of efficiency for the work it has to perform, without reference to any of the side issues raised in the discussion, and concluded with moving a cordial vote of thanks to Dr. Lawson for his able and conclusive statement. This was carried unanimously.

The VITAL STATISTICS *of* PEABODY BUILDINGS *and other* ARTISANS' *and* LABOURERS' BLOCK DWELLINGS. *By* ARTHUR NEWSHOLME, M.D. LOND., D.P.H., *Medical Officer of Health for Brighton.*

[Read before the Royal Statistical Society, 17th February, 1891.
The President, FREDERIC JOHN MOUAT, M.D., F.R.C.S., LL.D., in the Chair.]

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WHEN the President of the Royal Statistical Society honoured me by an invitation to contribute to its Proceedings, I ventured to say that I would read a paper on "the relation between density of "population and mortality." The views of the late Dr. Farr on this question have become accepted as almost axiomatic, and it appeared desirable that they should be revised in the light of more recent facts, and that the somewhat heterodox views I held in relation to this matter should be subjected not only to the test of still further statistical examination than I had hitherto been able to make, but also to the criticism which their statement could not fail to elicit. With this object in view I proceeded to obtain the statistics of the Peabody Buildings as an extreme instance of a dense population, an instance which admittedly did not exist at the time when Dr. Farr first showed the close relationship then existing between density of population and mortality, and applied Farr's formula to them. The result I shall shortly give, with some reservations. But the subject opened out by an examination of the statistics of the Peabody Buildings and allied dwellings gradually expanded under my hands, and I was fortunate in obtaining statistics of such an elaborate and complete character, that I felt justified in devoting the whole of the time at my disposal to them, thus leaving the more general problem open for future examination. In view of the importance of the problem of the housing of the poor, and of the efforts which are being steadily and increasingly made towards a solution of this problem, the experience acquired by the block dwellings already in existence, especially in regard to sickness and mortality, and the character of the prevailing diseases, may help to guide the action of public bodies and of private philanthropists in the future.

The statistics I have been able to obtain relate only to three of the many companies or trusts now providing block dwellings for the labouring classes. Only these three appear to have kept records of births and deaths and causes of death. Even among these three I must place the Peabody Buildings in a different category to the dwellings of the Improved Industrial Dwellings' Company, and of the Metropolitan Association for Improving the Dwellings of the Industrious Classes. In the case of the Peabody Buildings the local registrars of births and deaths furnish quarterly returns for each Building, and in addition the deaths of inhabitants of the Peabody Buildings occurring in hospitals and infirmaries are included in the death returns. The task of obtaining the *causes* of hospital deaths has been undertaken for me by Mr. Crouch, the able secretary of the Peabody Trust, and his son, and I have to thank them for their courtesy and for the large amount of labour they have expended in furnishing me with various figures and returns. It was indispensable that the causes of hospital deaths should be included, and I am glad to say that the figures to be subsequently given are accurate and complete; but it will be easily understood that the task was so onerous as to preclude us from obtaining the data for more than the last three years.

The death returns of the Metropolitan Association include the causes of death in the dwellings and in hospitals, but they are supplied on the authority of the superintendent of each Building, and cannot therefore be accepted as equally trustworthy with returns for which the local registrar of births and deaths is responsible. In addition, the populations of the dwellings of the Metropolitan Association and of the Improved Industrial Dwellings' Company are estimates, whereas that of the Peabody Buildings is annually enumerated, the age and sex of each person being ascertained. I have thought it right to put the Society into possession of the facts as to the extent to which my figures can be accepted, but at the same time I wish to take this opportunity to thank Mr. Moore and Mr. Butler, the secretaries of the two companies named, for the courtesy with which they have placed all the information in their possession at my disposal.

The population living in these three sets of dwellings is as follows:—

Peabody Dwellings	20,462
Dwellings of the Improved Industrial Dwellings' Company	23,470
,, Metropolitan Association for Improving the Dwellings of the Industrious Classes	5,388
Total population (1890)	49,320

It may here be stated that although the last named company includes in its property not only twelve block buildings, but also two groups of cottages, I have excluded the population, births and deaths, of the cottages from my returns, in order to confine my statistics entirely to block dwellings.

Table I.—*Analysis of Population in each Peabody*

	0—5.		5—10.		10—15.		15—20.		20—25.	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
Bedfordbury	38	42	49	45	39	45	32	28	17	25
Bermondsey	33	28	23	29	15	18	8	8	5	10
Blackfriars Road	105	101	92	83	52	73	63	45	35	51
Chelsea	20	14	13	14	10	10	10	7	5	6
Clerkenwell	82	78	72	68	54	62	28	26	13	27
Great Wild Street	123	138	101	120	62	81	64	43	32	48
Islington	111	124	107	107	60	72	47	50	36	51
Little Coram Street	72	90	71	65	46	48	29	26	18	26
Old Pye Street	90	92	64	84	55	39	32	18	29	33
Orchard Street	116	118	95	101	66	70	39	50	36	58
Pimlico	180	187	165	155	127	127	99	72	70	75
Shadwell	60	58	48	39	35	39	20	20	20	18
Southwark Street	80	92	96	80	64	70	45	53	22	30
Spitalfields	14	15	12	10	10	15	7	8	9	8
Stamford Street	76	110	74	94	74	84	57	53	47	55
Westminster	43	36	48	34	38	47	25	20	15	13
Whitechapel	90	116	94	86	48	58	40	35	30	45
Whitecross Street	328	340	323	293	260	240	167	165	110	111
Totals for all Peabody Buildings	1,661	1,779	1,547	1,507	1,115	1,198	812	727	547	690
	3,440		3,054		2,313		1,539		1,237	

The next point to be ascertained is how this distribution of persons compares with that for England and Wales and for the whole of London. The result is shown approximately in Table II, which gives the number of persons, and of males and females out of a total of 1,000 persons, living at each age-group. The table shows that there is a considerably higher proportion of persons under ten years of age than for England and Wales, and a still higher proportion at the same ages than for the whole of London.

I.—*Age and Sex Constitution of Population of Peabody Buildings.*

The Peabody Trust take an annual census of the inhabitants of their dwellings, and by this means I have been able to ascertain exactly the age and sex distribution of their population, thus obtaining an accurate and exact foundation on which to base the subsequent statistics.

The number of males and females living in each Peabody Building is given (Table I) in five-yearly groups up to the age of 25 years, and subsequently in ten-yearly groups to the age of 75, all subsequent ages being lumped together.

Building at the Census taken in December, 1889.

25—35.		35—45.		45—55.		55—65.		65—75.		75 and upwards.		Total Number at all Ages.		
Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female	Male.	Female.	Male.	Female.	Persons.
31	33	46	48	39	35	12	13	8	9	1	1	312	324	636
24	23	15	18	10	9	5	4	2	—	—	—	140	147	282
103	102	69	91	70	80	37	37	8	14	—	5	634	682	1,316
14	9	19	19	13	13	9	9	3	3	3	2	119	106	225
65	106	74	57	33	31	12	14	1	10	—	4	434	483	917
142	143	70	68	63	49	19	34	15	13	3	4	694	741	1,435
90	101	68	66	47	41	12	17	11	10	2	2	591	641	1,232
67	81	52	64	25	23	9	15	8	6	—	3	397	447	844
72	91	68	68	26	43	22	31	11	14	1	2	470	515	985
128	154	85	102	45	60	33	43	14	22	3	3	660	781	1,441
174	190	134	140	100	106	37	38	11	16	2	8	1,099	1,114	2,213
60	60	47	49	32	30	19	17	7	7	2	1	350	338	688
69	84	70	72	42	47	26	23	4	15	2	5	520	571	1,091
15	18	15	15	8	12	9	12	4	5	1	—	104	118	222
80	110	69	91	55	69	25	30	10	21	3	6	570	723	1,293
44	46	35	37	27	30	17	19	5	12	—	2	297	296	593
98	101	81	74	36	51	14	14	5	5	5	5	541	590	1,131
230	273	251	251	137	144	58	78	19	34	7	6	1,890	1,935	3,825
1,506	1,726	1,268	1,330	808	873	376	448	146	216	35	59	9,821	10,553	20,374
3,232		2,598		1,681		824		362		94				

The proportion aged 10 to 15 is again higher than for England and Wales and for London, but between 15 and 25 it is much lower than both these. In the next thirty years it does not differ widely from London, but after 55 there is a lower proportion of persons than in London, and still lower than in the whole of England and Wales. The significance of these facts will be evident when we come to analyse the death-rate at different ages.

Comparing the two sexes, we find a higher proportion of males in the Peabody Buildings than in the whole of London, which is of some importance in view of the higher mortality which attaches to the male sex.

TABLE II.—*Constitution of Population per* 1,000 *Persons.*

	At all Ages.	0—5	5—10.	10—15.	15—20.	20—25.	25—35.	35—45.	45—55	55—65.	65—75	75 and upward
Persons—												
England and Wales...	1,000	135	121	108	98	90	146	113	83	59	33	14
London	1,000	131	110	96	97	101	168	123	84	54	27	9
Peabody Buildings	1,000	169	150	113	75	61	158	128	83	40	18	5
Males—												
England and Wales....	486	67	60	54	49	43	70	54	40	28	15	6
London	471	65	55	47	45	46	79	58	39	23	11	3
Peabody Buildings	482	82	76	55	39	27	74	62	39	19	7	2
Females—												
England and Wales....	514	68	61	54	49	47	76	59	43	31	18	8
London	529	65	55	49	52	55	90	65	46	30	16	6
Peabody Buildings	518	87	74	59	36	34	85	65	43	22	10	3

NOTE.—*In the above table the proportions per* 1,000 *for England and Wales and for London are calculated from the census figures of* 1881, *the proportion for the Peabody Buildings from the figures of* 1889.

The true significance of Table II can however only be learnt by obtaining a factor for correction of the recorded death-rate of the Peabody Buildings, and this is done by the method introduced by the Registrar-General in his Annual Summary for 1883.

TABLE III.

Ages.	Mean Annual Death-Rate for England and Wales, 1871-80.		Population of Peabody Buildings in 1889.		Calculated Number of Deaths.	
	Males.	Females.	Males.	Females.	Males.	Females.
Under 5	68·14	58·10	1,661	1,779	113·18054	103·35990
5—10	6·67	6·20	1,547	1,507	10·31849	9·34340
10—15	3·69	3·70	1,115	1,198	4·10435	4·14326
15—20	5·23	5·43	812	727	4·24676	3·94761
20—25	7·32	6·78	547	690	4·00404	4·67820
25—35	9·30	8·58	1,506	1,726	14·00580	14·80908
35—45	13·74	11·58	1,268	1,330	17·42232	15·40140
45—55	20·05	15·59	808	873	16·20040	13·61007
55—65	34·76	28·54	376	448	13·06976	12·78592
65—75	69·57	60·82	146	216	10·15722	13·13712
75 and upwards	169·08	155·83	35	59	5·91780	9·19397
	—	—	9,821	10,553	212·62748	204·40993
			20,374		417·03741	

The population of the Peabody Buildings is first taken (Table III), next the mean annual death-rate for the decennium 1871-80 is applied to this population, and the calculated number of deaths is thus ascertained. Thus if the mean annual death-rate for England and Wales during 1871-80 had held good for the Peabody Buildings during 1889, the number of deaths would have been 417·03741, and the death-rate per 1,000, therefore $= \frac{417037 \cdot 41}{20374}$ $= 20 \cdot 47 =$ standard death-rate.

Now the annual death-rate for England and Wales during 1871-80, was 21·27, and any difference between this and the standard death-rate just obtained for the Peabody Buildings must evidently be due to the fact that the age and sex distribution of the inhabitants of the Peabody Buildings is more favourable to a low mortality than that of England and Wales. By dividing 21·27 by 20·47, we obtain a factor 1·0391, which when multiplied into the annual death-rate for the Peabody Buildings will give the corrected death-rate.

I have assumed that the age and sex distribution of one year holds good in other years, and this assumption appears to be warranted by the practice of the Registrar-General, who assumes the accuracy of factors obtained for each great town early in the decennium, throughout the whole of the decennium. The corresponding factor for the whole of London is 1·0615. It follows therefore that the age and sex distribution of the population of the Peabody Buildings is less favourable to a low mortality than is that of the general population of London; and we are justified in saying in answer to the statement frequently made that "the "population living in the Peabody Buildings is a selected population," that so far as age and sex distribution is concerned, they were in the year 1889 much less favourably constituted than the population of London as a whole.

That there is selection of a kind cannot be denied. Only those who will conform to certain rules may become tenants of these buildings. The dirty and dissolute, even if admitted, will be dismissed when their failings are detected. There is I believe great leniency as to dismissal for non-payment of rent, and ample opportunity is given for those temporarily out of work to recover themselves. In this respect they are probably more humanely treated than those living in small tenement houses not under the control of a powerful and philanthropic trust.

The Metropolitan Association and the Improved Industrial Dwellings' Company do not take any census of the ages and sex of the persons living in their block dwellings, and I cannot therefore apply a similar correction to their recorded death-rates. The high birth-rate in the Peabody Buildings would lead one to anticipate that the age distribution of the population of the Peabody Buildings would be favourable to a low mortality, and that (the birth-rate in the dwellings of the two Companies being lower than in the Peabody Buildings) their age distribution would be less favourable. An analysis of the population of the Peabody Buildings has shown us however that the age distribution is much less favourable than might have been anticipated.

Table IV.—*Birth-Rate in Block Dwellings and in London.*

	Mean Annual Birth-Rate per 1,000 Inhabitants for the Five Years 1886-90.
Peabody Buildings	40·24
Metropolitan Association	32·98
Improved Industrial Dwellings	35·21
The whole of London	30·81

II.—*Births and Birth-Rates.*

In Table V. I have summarised some of the more important vital statistics of the Peabody Buildings since they were first built. The average birth-rate for the last five years is given in Table IV, and it will be seen that it is 30 per cent. higher than that for the whole metropolis during the same period.

Table V.

Year.	Population.	Birth-Rate per 1,000 Living.	Deaths.	Death-Rate per 1,000 Living.	Deaths under One Year to 1,000 Births.	Death-Rate from Seven Chief Zymotic Diseases per 1,000 Living.
1865	About 900	—	5 in 2 years	—	—	—
'66	,,	—	7	—	—	—
'67	1,583	—	25	—	—	—
'68	1,971	—	—	—	—	—
'69	About 1,971	—	—	—	—	—
'70	—	—	—	—	—	—
'71	About 3,500	—	—	—	—	—
'72	,,	—	—	—	—	—
'73	,,	—	—	—	—	—
'74	3,815	—	—	23 (sc. f.)	—	—
'75	—	—	—	20·80	—	—
'76	7,797	—	—	19·02	—	—
'77	8,658	—	—	20·30	—	—
'78	9,680	—	—	20·76	—	—
'79	9,705	—	—	20·09	—	—
'80	9,899	—	—	19·71	—	—
'81	11,459	—	—	17·22	—	—
'82	14,604	45·04	—	18·42	137·41	—
'83	18,009	41·80	—	18·60	155·65	—
'84	18,453	44·60	—	19·10	138·69	—
'85	20,005	45·16	—	19·60	138·67	—
'86	20,228	42·35	—	19·28	149·48	—
'87	20,279	41·78	—	18·72	140·66	—
'88	20.413	39·61	374	18·47	126·87	3·432
'89	20,374	39·04	337	16·49	126·57	
'90	20,462	38·41	432	21·11	138·67	4·347

III.—*Mortality from all Causes.*

The preceding table gives the death-rate in the Peabody Buildings since the year 1874. Great care has been taken to include the deaths of inhabitants of these buildings occurring in hospitals and infirmaries. During 1888, out of a total of 374 deaths, 59 occurred in hospitals and infirmaries; during 1889, out of 337 deaths, 58 occurred in hospitals and infirmaries; and during 1890, 70 out of 432; or an average of 16·3 per cent. of the total deaths.

TABLE VI.—*Mean Annual Death-Rate per* 1,000 *Inhabitants for Groups of Years.*

	Seven Years 1874-80.	Five Years 1881-85.	Four Years 1886-89.
London	22·41	20·66	19·11
Peabody Buildings	20·53	18·59	18·79
Improved Industrial Dwellings	—	—	12·46*
Dwellings of Metropolitan Association	—	—	15·74

* No hospital deaths included.

If we apply the factor of correction already obtained, we obtain the following results, comparing the corrected death-rate of the Peabody Buildings with that of London:—

TABLE VII.—*Comparison of Corrected Death-Rates of London and of Peabody Buildings.*

	Average for Five Years 1881-85.	1886.	1887.	1888.	1889.	1890.
London	21·93	21·12	20·81	19·64	18·47	21·70
Peabody Buildings	19·34	20·03	19·47	19·19	17·13	21·94

IV.—*Male and Female Mortality.*

Of the total deaths during the two years 1888-89, 342 were of males and 369 of females, which gives an annual death-rate of 17·41 per 1,000 for males, and of 17·33 per 1,000 for females. During the same two years the death-rates of males and females in London as a whole were 19·52 and 16·61 per 1,000 respectively.

An explanation of the higher mortality among females is probably to be found in the fact that a large number of charwomen, needlewomen, and other single women of impoverished means live in the Peabody Buildings, whose laborious occupations, too often combined with insufficient food, do not conduce to longevity. (See Table XX.)

V.—*Mortality at Different Ages.*

We proceed to further analyse the deaths in these block dwellings, only premising that inasmuch as with the subdivision the number in each group diminishes, the death-rates obtained cannot be regarded as equally trustworthy with those for all ages. The same remark applies to the deaths from different causes, but though the results cannot be taken as conclusive, they at least give important indications.

TABLE VIII.—*Deaths and Death-Rates at Twelve Groups of Ages*, 1888-89.

	All Ages.	0—5.	5—15.	15—25.	25—35.	35—45.	45—55.	55—65	65—75.	75 and upwards.	Age not stated.
Population of Peabody Buildings (1889)	20,374	3,440	5,367	2,776	3,226	2,598	1,681	824	362	94	—
Total deaths in 1888-89	711	407	36	20	41	46	52	45	37	18	9
Mean annual death-rate per 1,000 persons for 1888-89 in—											
1. Peabody Buildings	16·49	59·1	3·3	3·6	6·3	8·9	15·4	27·3	51·1	95·7	—
2. London................	17·96	55·8	3·8	3·6	6·5	11·5	18·9	31·7	67·9	167·5	—

It will be seen that with the exception of the first five years of life, the comparison is in favour of the Peabody Buildings, while at ages between 35 and 55, the lowness of the death-rate in the Peabody Buildings as compared with that of London is very remarkable. At the higher ages the same result is obtained, but the number of individual facts on which it is founded is so small as to necessitate caution in drawing any conclusions from them. The somewhat higher death-rate at all ages under 5, implies a higher death-rate between the ages of 1 and 5, inasmuch as the infantile mortality is considerably lower in the Peabody Buildings than in London as a whole. The higher death-rate between the ages of 1 and 5 must be linked with the higher mortality from measles and whooping cough shown in Table X.

In the following table the infantile deaths in the Peabody Buildings stated in proportion to the births, are given for a series of years, and are compared with the corresponding rates for other block dwellings and for London.

TABLE IX.—*Deaths of Infants under One Year to 1,000 Births.*

	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
London	151	146	155	148	159	158	146	141	163
Peabody Buildings	137·41	155·65	138·69	138·67	149·48	140·66	126·87	126·57	138·67
Improved Industrial Dwellings	—	—	—	—	141	127	139	112	133
Dwellings of Metropolitan Association	—	—	—	—	121				

Considerable stress may be laid on the persistently low infantile mortality in the Peabody and other block dwellings. Infants form a very delicate index of the character of the environment of the individual, and a high infantile mortality may rightly be regarded as indicating unfavourable sanitary or social conditions. The fact therefore that the infantile mortality of the block dwellings stands at a low figure is greatly in their favour.

VI.—*Causes of Death.*

In Table A in the Appendix is given a complete statement of (*a*) all deaths classified according to age and sex and causes of death in the Peabody Buildings during the two years 1888-89; (*b*) the deaths occurring during 1890 in the Peabody Buildings, classified according to the cause of death; and (*c*) the deaths occurring in the block dwellings of the Metropolitan Association during 1886-90 classified according to the cause of death. In each case the deaths of occupants of these dwellings occurring in hospitals and infirmaries are included.

VII.—*Zymotic Diseases.*

We may take first the deaths from specific febrile or zymotic diseases. The death-rate from each of the seven chief "zymotic" diseases is given in the following table:—

Table X.—*Annual Death-Rate from the Chief Zymotic Diseases.*

	Small Pox.	Scarlet Fever.	Diphtheria.	Enteric Fever.	Measles.	Whooping Cough.	Diarrhœa.
Peabody Buildings (mean of two years 1888-89)	—	0·343	0·539	0·073	1·04	0·858	0·563
London (mean of two years 1888-89)	0·0005	0·226	0·339	0·143	0·549	0·553	0·568
Peabody Buildings (1890)	—	0·634	0·147	0·097	1·026	2·052	0·391
London (1890)	—	0·197	0·320	0·149 (fever)	0·724	0·741	0·622
Improved Industrial Dwellings (mean of five years 1886-90)*	(1 death)	0·238	0·149	0·062	0·344	0·617	0·352
Dwellings of Metropolitan Association (mean of five years 1886-90)	—	0·222	0·369	0·074	0·593	0·482	0·556

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* It is stated that the returns (on which the above rates are founded) "do "not include persons dying in hospitals and infirmaries, but from inquiries "which we have from time to time instituted, the number of persons removed "to hospitals is purely fractional, and the deaths of any such persons would "not affect to any appreciable extent the figures supplied to you." See remarks on p. 77.

In commenting upon this table I shall confine myself chiefly to the Peabody Buildings, as its returns are from official sources, and probably more absolutely complete than those of the other companies.

Comparing the death-rates for the Peabody Buildings with the corresponding rates for the whole metropolis for the two years 1888-89, we find (1) in the first place that the one disease which is more closely associated in its origin with local insanitary conditions than any other, viz., enteric fever, is only about half so frequent in its incidence in the Peabody Buildings (as judged by the number of deaths). This result is important, as indicating how the aggregation of a large number of tenements on a circumscribed area has permitted of a more perfect (and in all probability better supervised) arrangement of drainage than in the average private dwelling house.

(2.) The table indicates in the next place that the rate of mortality from diarrhœa is slightly lower than that for London. It would be considerably lower than the rate for the whole metropolis, but for the facts that nearly 70 per cent. of the total mortality from diarrhœa occurs among infants, and the Peabody Buildings have an excessive proportion of infants. Stated in proportion to births, during the two years 1888-89 the number of deaths of children under 1 year of age from diarrhœa in the Peabody Buildings was 4·36 per 1,000 births; in the whole of London during the same period, 13·44 per 1,000 births.

(3.) In the third place, the indication as regards diphtheria is less favourable, the death-rate from this disease being higher in the Peabody Buildings than in London. Probably this greater fatality from diphtheria is ascribable rather to the facilities for personal communication, and the occurrence of direct infection from sick to healthy, than to any special insanitary condition, an assumption which is favoured by the very low death-rate from enteric fever.

(4.) The last point bearing on Table X to which we need draw attention, is the fact that the diseases which are *par excellence* due to direct infection from person to person (with the exception of small pox) show a much higher rate of mortality than in the whole of London. This is shown very markedly in the case of measles and whooping cough, which are treated at home, and to a less extent for scarlet fever, nearly all cases of which are removed to the hospitals of the Metropolitan Asylums' Board. Such a result might have been anticipated, owing to the difficulty of isolating one tenement from another, and the ease with which personal contact occurs in the playground or on the staircases of the dwellings.

In order to give a complete view of the fever statistics, I append (Table XI) a statement of the number of cases admitted into the hospitals of the Metropolitan Asylums' Board during the last three years, which has been extracted for me from the weekly returns of the Board during that period:—

TABLE XI.—*Cases Admitted into the Asylums' Board Hospitals.*

	Number of Cases admitted from		Admissions per 1,000 of Population from	
	Peabody Buildings.	Metropolis.	Peabody Buildings.	Metropolis.
Scarlet fever—				
1888	92	4,408	4·51	1·03
'89	82	4,518	4·02	1·05
'90	147	6,565	7·18	1·48
Diphtheria—				
1888	1	99	—	—
'89	5	722	0·24	0·16
'90	11	647	0·54	0·14
Enteric fever—				
1888	0	450	0·00	0·10
'89	3	290	0·14	0·07
'90	5	1,049	0·24	0·24

It will be seen from this table that the *admissions* to the Asylums' Board hospitals from the Peabody Buildings were, on the average, for scarlet fever, four times as numerous in proportion to population; for enteric fever, as numerous; for diphtheria, more than twice as numerous as for the whole metropolis. The *mortality* from the same diseases is however, for scarlet fever and diphtheria about one-and-a-half times as great, and for enteric fever about one-half of that of the metropolis. It s reasonable to assume that the difference between the two indications is owing to the more complete removal of infectious cases to hospital in the case of the Peabody Buildings.

The figures for measles and whooping cough may be stated in another way. It is well known that the chief mortality from these two diseases occurs under five years of age. Thus, as shown in the following table, during the year 1888 91·4 per cent of the total deaths from measles, and 96·5 per cent. of the total deaths from whooping cough in England and Wales, occurred at ages under 5.

TABLE XII.

	Total Deaths at all Ages in England and Wales.	Percentage of Total Deaths occurring from each Disease.				
		Under 1 Year	1—3.	3—5.	0—5.	All higher Ages.
Measles	9,784	20·2	54·9	16·3	91·4	8·6
Whooping cough	12,287	44·0	42·3	10·2	96·5	3·5

It will be well therefore to state the death-rate from these two diseases in proportion to the number of children living aged 0—5. This is done in the following table, and the result shows that a portion of the excessive mortality from measles and whooping cough in the Peabody Buildings is due to the excessive proportion of children under 5, though even when this source of error is eliminated, there remains an excess of mortality from these two diseases in the Peabody Buildings.

TABLE XIII.

	Peabody Buildings.	Metropolis.
Estimated number of persons living aged 0—5, 1888-89	3,440	562,272
Total deaths during the two years 1888-89 from—		
Measles	43	4,733
Whooping cough	35	4,780
Mean annual death-rate per 1,000 living aged 0—5 from—		
Measles	6·25	4·21
Whooping cough	5·08	4·25
Mean annual death-rate per 1,000 of all ages from—		
Measles	1·04	0·549
Whooping cough	0·858	0·553

VIII.—*Tubercular Diseases.*

Of the remaining diseases, tubercular diseases, and especially phthisis, offer the most important indications. The influence of the prolonged breathing of a vitiated air in the causation of phthisis is well known: *ceteris paribus* phthisis being most prevalent among those who are badly housed, in ill-ventilated overcrowded rooms, where light and air have difficult access. The influence of occupation must however not be lost sight of. The vitiated character of the air breathed by very many occupants of the Peabody Buildings during the eight or ten working hours of each day, ofttimes in cramped attitudes of body, as among typesetters, tailors, needlewomen (see list of occupations, p. 90), must have a considerable effect in the same direction. The following table compares London as a whole with the Peabody Buildings. I lay no stress on the apparent excess of the death-rate from phthisis in the dwellings of the Metropolitan Association: these returns were furnished to the Secretary by the superintendents of each building, and they would be likely to return as "consumption" other wasting diseases as well as phthisis.

TABLE XIV.

	Mean Population.	Total Number of Deaths from		Annual Death-Rate per 1,000 from		
		Phthisis.	Other Tubercular Diseases.	Phthisis.	Other Tubercular Diseases.	All Tubercular Diseases.
London (1888-89) …………	4,317,329	15,207	6,667	1·761	0·774	2·535
Peabody Buildings (1888-89) …………………	20,337	74	33	1·819	0·811	2·630
Peabody Buildings (1890)	20,462	49	16	2·389	0·782	3·171
Dwellings of Metropolitan Association (five years, 1886-90)…………	5,388	56	9	2·079	0·297	2·358

It will be seen that the Peabody Buildings show a slight excess when compared with London as a whole. When compared with the more central districts of London they come out more favourably. Thus during 1889 the death-rate from all tubercular diseases in St. Giles' was 3·0 per 1,000, as compared with 2·59 per 1,000 in the Peabody Buildings. The figures for 1890 are not so favourable. I am not able to compare them with the corresponding figures for the whole metropolis, but there is reason to believe that these will likewise be above the average.

I had hoped to be in a position to compare the statistics of the cottage dwellings on the Shaftesbury Park Estate, Battersea, with those of the Peabody Buildings, and we should then have had an excellent illustration of the results attained by the housing of artisans and labourers by philanthropic or semi-philanthropic bodies under two different sets of conditions. This however has proved to be impracticable; and the next best thing appears to be a comparison, as given in the following table, of the death-rates from the more important diseases in Battersea (four-fifths of whose population probably belongs to the industrial classes), with the corresponding rates in the Peabody Buildings.

TABLE XV.—*Comparison of Special Death-Rates of Battersea and Peabody Buildings.*

	Mean Population.	Annual Death-Rate per 1,000 from									Deaths of Children under One Year to 1,000 Births.
		Phthisis.	Other Tubercular Diseases.	Scarlet Fever.	Diphtheria.	Enteric Fever.	Measles.	Whooping Cough.	Diarrhœa.	All Causes.	
Battersea (1888 and 1889)	151,647	1·526	1·104	0·122	0·142	0·092	0·646	0·662	0·626	15·15	142
Peabody Buildings (1888 and 1889)	20,337	1·819	0·811	0·343	0·539	0·073	1·04	0·858	0·563	17·48	127

The comparison shows that the death-rate from all tubercular diseases is exactly equal in the two populations compared, though that from phthisis alone is somewhat higher in the Peabody Buildings than in Battersea. In infantile mortality, and in mortality from enteric fever and from diarrhœa—three delicate tests of the sanitary environment of the individual—the Peabody Buildings compare very favourably with Battersea; but they compare unfavourably as regards other zymotic diseases. We have seen that in the case of the Peabody Buildings a high birth-rate does not necessarily imply an age distribution of the population, which is favourable to a low mortality. Although I am not able to test the fact, probably the same does not hold good for Battersea, and it is interesting to note therefore that the birth-rate of Battersea during 1888-89 was 33·7 per 1,000, as compared with 30·5 for London.

IX.—*Deaths from other Causes.*

It is hardly necessary to pursue the examination of the vital statistics farther. The following table, which gives a summary of Table A in the Appendix, so far as it relates to 1888-89, will enable the comparison to be pursued by those who are interested in it.

TABLE XVI.—*Comparison of Deaths from different Groups of Diseases.*

	Total Deaths during			Annual Death-Rate per 1,000 Persons in		
	2 Years, 1888-89.	5 Years, 1886-90.	2 Years, 1888-89.			
	Peabody Buildings.	Metropolitan Association Dwellings.	London.	Peabody Buildings.	Metropolitan Association Dwellings.	London.
1. *a.* The seven chief zymotic diseases	140	59	20,499	3·432	2·190	2·370
b. All other specific febrile diseases	12	8	2,611	0·294	0·297	0·302
2. Parasitic diseases	—	1	177	—	—	0·024
3. Dietetic ,, ...	1	—	905	—	—	0·105
4. Constitutional diseases	132	75	30,734	3·236	2·784	3·559
5. Developmental ,, ...	63	23	10,296	1·544	0·854	1·191
6. Local diseases—						
a. Diseases of nervous system	69	56	18,176	1·691	2·079	2·104
b. Diseases of circulatory system	35	17	12,903	0·858	0·631	1·494
c. Diseases of respiratory system	167	121	31,885	4·094	4·491	3·692
d. Diseases of digestive system	26	20	8,652	0·637	0·740	1·002
e. Diseases of lymphatic system and ductless glands	1	—	212	—	—	0·025
f. Diseases of urinary system	12	4	4,155	0·294	—	0·481
g. Diseases of reproductive system	3	1	900	—	—	0·140
h. Diseases of organs of locomotion	—	—	747	—	—	0·086
i. Diseases of integumentary system	4	—	507	—	—	0·058
7. Violence	15	21	5,922	0·367	0·779	0·685
8. Ill defined and not specified causes	31	18	2,784	0·760	0·668	0·322
Deaths from all causes	711	424	154,531	17·72	15·74	17·96

X.—*Density of Population.*

Having stated the relative incidence of various diseases on the population of the Peabody and other block dwellings, we may further examine the population of the Peabody Buildings, especially as regards their degree of aggregation and the chief occupations in which they engage. In Table XVII is stated the population of each of the Peabody Buildings; the area of (1) the entire ground in which each building stands, and (2) of the ground on which the block dwelling is built; the number of persons housed in each building upon an acre of ground; and the corresponding number of persons per acre in the registration district in which each Peabody Building is contained.

The average density for all the Peabody Buildings is 751 persons to an acre, as compared with 58 persons to an acre in the whole of London: the variations in the Peabody Buildings being between 463 persons to an acre in Bermondsey, and 1,132 in Whitecross Street. This difference is explained by the fact that the Bermondsey Peabody Building is three-storeyed, whereas the Whitecross Street Building is partly five-storeyed and partly six-storeyed.

Dr. Farr's views on the relation existing between density of population and rate of mortality are well known. The final formula in which he embodied these views is as follows:—

$$m' = m\left(\frac{D'}{D}\right)^{0\cdot11998}$$

i.e., the mortality of districts is nearly as the eighth root of their densities. (Supplement to the 35th Annual Report of the Registrar-General, p. clviii.)

At the time when Dr. Farr first showed the close relationship then existing between density of population and mortality (5th Annual Report of Registrar-General, p. 420), Peabody Buildings were not in existence, and it seems therefore unfair to attempt to apply the formula to them. Without entering further into the discussion of this point in the present paper, I will content myself with stating that it is gratifying to learn that the prevalent notion that increased density of population *necessarily* implies an increased mortality is quite unfounded, judging by the experience of the Peabody Buildings. Thus during the year 1889 the number of persons to an acre in London was 58, in the Peabody Buildings 751. What ought to be the death-rate in the Peabody Buildings, that of London being 17·4 per 1,000?

$$m' = 17\cdot4\left(\frac{751}{58}\right)^{0\cdot11998}$$

Consequently $m' = 24\cdot21$.

But the actual death-rate of the Peabody Buildings was 16·49 per 1,000. Hence the actual death-rate was 7·72, or 31 per cent. lower than the death-rate calculated on the assumption that mortality varies with density of population according to Farr's law.

TABLE XVII.

Peabody Building.	Population, 1889.	Area in Square Feet of		Persons to an Acre (1889).	Persons to an Acre in the Registration District in which each Peabody Building is contained (1881).
		(1) Ground within which the Dwelling stands.	(2) The Dwelling itself.		
Bermondsey	287	27,000	10,920	463	78
Bedfordbury	636	31,545	14,428	878	78
Blackfriars Road	1,316	125,000	41,700	459	167
Chelsea	225	13,616	6,300	720	102
Clerkenwell	917	45,560	23,695	876	186
Great Wild Street	1,435	63,360	29,250	986	185
Islington	1,232	70,000	28,707	766	91
Little Coram Street	844	54,500	18,600	674	185
Old Pye Street	985	43,000	22,650	997	216
Orchard ,,	1,441	81,641	33,750	769	73
Pimlico	2,213	173,390	63,300	556	73
Shadwell	688	44,300	13,800	676	103
Southwark Street	1,095	65,849	27,000	724	167
Spitalfields	222	13,682	10,894	707	176
Stamford Street	1,293	90,000	33,600	626	62
Westminster	593	23,500	15,856	1,097	216
Whitechapel	1,131	68,955	27,268	714	176
Whitecross Street	3,825	147,127	82,290	1,132	186
	20,374	1,182,025	504,008	751	49 (London)

It will be seen from the above table that the amount of open space within the curtilage of the Peabody Buildings varies considerably in different cases. In five out of the eighteen it is smaller in amount than the area covered by the buildings themselves, in the remaining thirteen it is considerably more than this. Taking the average of all the buildings it forms 57·4 per cent. of the total acreage in which the buildings stand.

The following table gives some further information bearing on the question of density of population and other points. The total number of tenements is 5,071, the number of rooms 11,275 (not including wash-houses and other offices common to several tenements). The number of blocks in each building varies from 3 in Spitalfields to 33 in Whitecross Street. Of the blocks, 6 are of three storeys, 44 are of four storeys, 126 of five storeys, and 36 of six storeys.

The mode of tenure of the tenements may be gathered from the fact that in 1889, out of 5,071 separate tenements, 76 were of four rooms, 1,790 of three rooms, 2,396 of two rooms, and 809 of one room.

TABLE XVIII.—*Details of Blocks, Tenements, Rooms, and Weekly Rentals in Peabody Buildings* (1890).

	Population.	Number of Tenements.	Number of Rooms.	Number of Persons per Tenement.	Number of Persons per Room.	Number of Storeys, including Ground Floor.	Number of Blocks.	Average Weekly Rental for each Tenement. s.	d.
Spitalfields	243	60	126	4·0	1·9	4	3	3	$9\frac{1}{6}$
Islington	1,244	293	632	4·2	2·0	5	9	4	6
Shadwell	720	198	416	3·6	1·7	5	4	3	$5\frac{1}{2}$
Westminster	598	146	359	4·1	1·6	3 blocks, 5 storeys 2 ,, 4 ,, and laundry	5	5	$-\frac{4}{5}$
Chelsea	229	67	132	3·4	1·7	4	4	3	$7\frac{1}{2}$
Bermondsey	271	72	144	3·8	1·9	3	6	4	$-\frac{1}{2}$
Old Pye Street	1,005	274	575	3·7	1·7	5	9	4	$4\frac{4}{7}$
Blackfriars Road	1,331	367	772	3·6	1·7	17 blocks, 4 storeys 2 ,, 5 ,,	19	4	$-\frac{5}{6}$
Stamford Street	1,321	352	736	3·7	1·8	5	16	4	$4\frac{2}{3}$
Southwark ,,	1,086	264	600	4·1	1·8	5	12	4	$8\frac{1}{5}$
Pimlico	2,182	527	1,282	4·1	1·7	18 blocks, 4 storeys 11 ,, 5 ,,	29	5	$1\frac{1}{2}$
Whitechapel	1,117	286	628	3·9	1·7	5	11	5	$1\frac{1}{4}$
Bedfordbury	633	146	362	4·3	1·7	4 blocks, 5 storeys 1 ,, 6 ,,	5	5	$4\frac{1}{2}$
Great Wild Street	1,430	347	808	4·1	1·8	6	13	5	1
Orchard Street	1,461	396	861	3·7	1·7	6	15	4	$11\frac{1}{2}$
Whitecross Street	3,821	843	1,878	4·5	2·0	8 blocks, 6 storeys 25 ,, 5 ,,	33	5	$3\frac{1}{2}$
Clerkenwell	937	228	514	4·1	1·8	5	11	5	$2\frac{1}{3}$
Little Coram Street	831	205	450	4·0	1·8	5	8	5	$1\frac{9}{10}$
	20,462	5,071	11,275	4·03	1·81		212	4	$8\frac{9}{10}$

Thus, including the 809 rooms which were used both as living and sleeping rooms, there are 7,013 bedrooms, occupied by 20,462 persons, or nearly 3 persons to each room. Now the bedrooms and sitting rooms average 13 feet by 10 feet and $8\frac{1}{2}$ feet high, giving a cubic capacity of 1,105 cubic feet, or an average of 380 cubic feet of space for each man, woman, and child during sleep. The single rooms occupied as tenements are somewhat larger than the other rooms.[1]

The number of rooms occupied by each family is of much greater importance in relation to health than the number of persons living on a given acre, as this fact throws important light on the state of each tenement as regards overcrowding. This information has been just given, and in Table XVIII the average number of persons to each tenement and to each room is given.

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[1] I am informed by Mr. F. B. Crouch, that in estimating the total number of bedrooms as 7,822, I am considerably below the mark, as owing to the fact that large families have preference over small families as tenants, not infrequently *all* the rooms in two, three, and four-roomed tenements are used as bedrooms. This fact would give an increased allowance of cubic space per head during sleep.

It would have been much better if I could not only have classified the tenements according to the number of rooms in each, but also given the average population of each class separately; but this has not been practicable. So far as our knowledge goes, however, we are I think in a position to maintain that, given houses properly constructed and drained, and given cleanly habits on the part of the tenants, increased aggregation of population on a given area has no influence in raising the death-rate, except in so far as it is accompanied by *overcrowding in individual rooms*, an event which is by no means necessary under the circumstances named. In other words, there is no causal relationship between density of population *per se* and a high mortality.

XI.—*Occupation of Tenants.*

The rental paid gives a very fair idea of the class of persons occupying the Peabody Buildings. It averages 4*s.* 8$\frac{9}{10}$*d.* in all the Peabody Buildings; the average weekly rental for all the Peabody Buildings varying from 3*s.* 5½*d.* in Shadwell to 5*s.* 4½*d.* in Bedfordbury. The amount of variation of rental in each Peabody Building for tenements of one or more rooms is shown in the following table, taken from the Annual Report of the Peabody Trust for 1889:—

TABLE XIX.

Where Situate.	One Room.					Two Rooms.					Three Rooms.					Four Rooms.				
	s.	*d.*		*s.*	*d.*	*s.*	*d.*		*s.*	*d.*	*s.*	*d.*		*s.*	*d.*	*s.*	*d.*		*s.*	*d.*
Shadwell	2	–	to	2	3	3	3	to	3	6	4	3	to	4	6			—		
Chelsea	2	3	,,	2	6	3	6	,,	4	–	4	6	,,	4	9			—		
Islington	2	6	,,	3	–	3	3	,,	5	–	5	–	,,	6	6			—		
Spitalfields				2	6	3	6	,,	4	–	4	6	,,	5	–			—		
Bermondsey	2	3	,,	2	6	4	–	,,	4	3	5	–	,,	5	6			—		
Westminster	2	6	,,	3	3	4	–	,,	5	6	5	–	,,	6	9			—		
Old Pye Street	2	6	,,	3	–	3	6	,,	5	–	5	–	,,	6	3			—		
Blackfriars Road	2	6	,,	3	–	3	9	,,	4	6	4	9	,,	5	9			—		
Stamford Street	2	9	,,	3	–	4	3	,,	4	6	5	0	,,	5	9			—		
Southwark ,,				3	–	4	3	,,	4	9	5	3	,,	5	9			—		
Pimlico	2	9	,,	3	–	4	6	,,	6	–	5	9	,,	7	6				7	6
Whitechapel				3	–	4	3	,,	4	9	5	3	,,	6	–			—		
Bedfordbury	2	9	,,	3	3	5	–	,,	5	3	5	6	,,	6	6	7	–	to	7	6
Great Wild Street	2	6	,,	3	–	4	3	,,	5	–	5	–	,,	6	6			—		
Orchard Street	2	9	,,	3	3	4	3	,,	5	6	5	3	,,	7	3				7	6
Whitecross Street	2	6	,,	3	6	4	3	,,	5	3	5	9	,,	6	6	7	3	to	7	6
Clerkenwell	2	6	,,	3	–	4	9	,,	5	3	6	–	,,	6	9			—		
Little Coram Street	2	6	,,	3	–	5	–	,,	5	3	6	3	,,	6	6			—		

The following table, taken from the same report, gives the occupation of 5,015 tenants:—[2]

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[2] The difference between 5,015 and 5,071, the total number of tenements, represents the number of empty tenements, *minus* a few instances in which tenants with large families occupy more than one tenement.

TABLE XX.—*Occupation of Tenants in Peabody Buildings.*

Bag makers	5	French polishers	22	Porters	539
Bakers	14	Furriers	8	Printers	147
Bookbinders, &c.	83	Gardeners	11	Sailors	18
Boot and shoemakers	38	Gasfitters	19	Scavengers	15
Box makers	28	Glass cutters	6	Scripture readers	9
Brass finishers	40	Hatters	12	Servants	112
Brewers' men	96	Harness makers	18	Shopmen	60
Bricklayers	32	Jewellers	26	Smiths	50
Brushmakers	11	Labourers	650	Soldiers	22
Butchers	20	Lamplighters	25	Stevedores	13
Cabinet makers	35	Laundresses	21	Stokers	31
Cabmen	42	Leather dressers	14	Storekeepers	12
Carmen	249	Letter carriers, &c.	88	Superintendents	15
Carpenters	57	Lightermen	17	Tailors	102
Cellarmen	35	Machinists	38	Tanners	10
Charwomen	292	Mangle women	34	Ticket collectors	10
Checkers	21	Masons	19	Tidewaiters	10
Cigar makers	13	Messengers	99	Time keepers	16
Clothworkers	19	Metalworkers	42	Tin plate workers	20
Coachmen and Stablemen	95	Moulders	10	Turncocks	4
Cooks	24	Needle women	304	Turners	22
Coopers	10	Nurses	49	Type founders	8
Costermongers	13	Office keepers	10	Umbrella makers	11
Enginemen	57	Packers	133	Upholsterers	26
Engravers	5	Packing case makers	15	Various handicrafts	42
Envelope makers, &c.	19	Painters, &c.	68	Waiters	75
Farriers	6	Pensioners	29	Warehouse labourers	160
Firemen	14	Plumbers	15	Watchmen	30
Florists	11	Police constables	240		
				Total	5,015

A glance at this table will give a quite sufficient answer to those who have asserted that the Peabody Buildings have not fulfilled their end in providing suitable homes for the poor. That they are occupied by the poor is further demonstrated by the average earnings of persons living in these buildings; for it will, I think, be acknowledged that persons in the receipt of less than 24*s.* wages per week do not belong to the highest class of skilled artisans.

Without committing ourselves to an advocacy of block dwellings under all circumstances, it is indubitable that for the large number of persons who must live in the central parts of London near their work, they form the only possible solution to the problem of housing of the poor. For others, doubtless, a cheap workmen's train service and cottages in the suburbs are preferable; and as shown by the instance of Battersea, the vital statistics of such suburban populations are in some respects more favourable than those of Peabody Buildings. But for the untrained and imperfectly educated poor, it may be maintained that with the aggregation of a number of tenements under a common roof, subject to surveillance as to cleanliness of stairs, rooms, and sanitary arrangements, and with a superintendent resident in each building, part of whose duty is to prevent overcrowding, probably better results are attainable in block dwellings than elsewhere. It must be admitted that such block dwellings do not meet the case of the lowest poor. I doubt if any class of dwelling will suit them. They particularly object to houses in which cleanliness is one of the conditions of continuance of tenancy, and in which a fair degree of sobriety is required. There is reason to hope however that this residuum is on the decrease.

While saying so much in favour of block dwellings as one solution of an important problem in the central parts of great towns, I must draw a distinction between block dwellings and block dwellings. Some of these have been run up by private companies or even by speculative builders, with an almost complete disregard of the laws of health. This is not the time or place to discuss the structural arrangements of block dwellings; but it will be understood that the preceding remarks apply only to block dwellings in which *every* tenement is well lit and well ventilated. The provision of a large amount of window space and of free ventilation of both staircases and rooms, and the prevention of overshadowing from neighbouring blocks, are essential to the wellbeing of the tenants; and unfortunately this has been grievously neglected in some of the private block dwellings to which I have alluded. It is however quite practicable, and by the rigid enforcement of building bye-laws under efficient municipal government it might be ensured in every case.[3]

The following details of the cost of Peabody Buildings, and of the amount of the Peabody Fund in successive years are appended, as showing the magnitude of the work which has been accomplished by the Peabody Trust:—

TABLE XXI.—*Details of Cost of Buildings and Total Cost of Peabody Buildings.*

	Date of Opening.	Cost of Buildings.		Total Cost.	
		Per Tenement.	Per Room.	Per Tenement.	Per Room.
First Trust—		£	£	£	£
Spitalfields	1864	—	—	—	—
Islington	1864-85	—	—	—	—
Shadwell	1866	204	97	217	104
Westminster	'68	231	94	315	128
Chelsea	'70	151	77	205	112
Bermondsey	'75	113	57	193	90
Old Pye Street	'77	158	76	209	100

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[3] For particulars on the structural aspect of this question, see a paper by Dr. Louis C. Parkes, read at the Sanitary Institute, 11th February, 1891.

TABLE XXI *Contd.—Cost of Buildings and Cost of Peabody Buildings.*

	Date of Opening.	Cost of Buildings.		Total Cost.	
		Per Tenement.	Per Room.	Per Tenement.	Per Room.
Second Trust—		£	£	£	£
Blackfriars	1871	155	74	193	92
Stamford Street	'75	165	79	219	105
Southwark	'76	179	79	249	109
Pimlico	'76	222	91	253	104
Whitechapel	'81	202	92	238	108
Bedfordbury	'81	223	90	286	115
Great Wild Street	'82	201	86	258	111
Orchard Street	'82	191	90	255	115
Whitecross Street	'83	187	84	234	105
Clerkenwell	'84	210	93	267	118
Little Coram Street	'85	180	82	290	132
Average of both Trusts ...	—	191	86	241	108

Total area occupied by Peabody Buildings, 1,182,025 square feet.
Average cost (including law expenses), 4*s.* 4¼*d.* per square foot.

TABLE XXII.—*Peabody Donation Fund.*

	Amount of Fund.			Number of Rooms.	Number of Tenements or Families.	Population.	Average Earnings.		
	£	*s.*	*d.*				£	*s.*	*d.*
1865 ...	161,616	1	3	450	214	about 900	—		
'66 ...	165,416	8	11	450	214	about 900	—		
'67 ...	170,042	6	4	870	412	1,583	—		
'68	173,313 203.259	9 3	3 11	1,109	511	1,971	under 21*s.*		
'69	175,079 209.471	8 –	11 7	1,109	511	about the same	—		
'70	178,733 213,918	10 1	7 7	1,241	578	—	about 20		
'71	182,922 220,985	18 10	3 7	1,875	882	about 3,500	—		
'72	186,733 228,352	4 18	11 10	1,875	882	"	1	2	4
'73 ...	578,059	9	5	1,875	882	"	—		
'74 ...	593,627	17	7	2,030	954	3,815	1	3	5
'75 ...	612,053	16	4	2,910	1,378	—	1	3	10
'76 ...	643,316	19	11	3,988	1,840	7,797	1	4	4½
'77 ...	677,165	16	5	4,971	2,257	8,658	1	4	6
'78 ...	699,130	17	4	5,170	2,348	9,860	1	3	8
'79 ...	723,917	5	4	5,170	2,355	9,905	1	3	10
'80 ...	750,697	3	–	5,170	2,355	9,899	1	3	4½
'81 ...	780,448	4	9	6,160	2,787	11,459	1	3	7¾
'82 ...	804,610	19	6	7,829	3,533	14,604	1	3	6¼
'83 ...	829,863	15	8	9,693	4,359	18,009	1	3	8
'84 ...	857,319	18	3	10,144	4,551	18,453	1	3	8¼
'85 ...	881,011	17	8	10,884	4,887	20,005	1	3	9½
'86 ...	910,668	3	1	11,150	5,014	20,228	1	3	9¾
'87 ...	935,570	16	7	11,151	5,014	20,279	1	3	9¾
'88 ...	965,182	7	9	11,275	5,071	20,413	1	3	9
'89 ...	994,789	19	9	11,275	5,071	20,374	1	3	9
'90 ...	1,023,446	1	11	11,275	5,071	20,462	1	3	8¼

Allow me finally to summarise some of the chief conclusions which the analysis of the statistics of the Peabody Buildings justifies:—

XII.—*Summary.*

1. In the year 1889, contrary to expectation, and notwithstanding the high birth-rate, the age distribution of the population of the Peabody Buildings was less favourable to a low mortality than that of London as a whole.

2. The death-rate of the Peabody Buildings averaged about 2 per 1,000 lower than that of London during the twelve years ending with 1885. During the four subsequent years the death-rate of the Peabody Buildings has remained about stationary, while that of London has shown a further decline; thus making the metropolitan death-rate approximate more closely that of the Peabody Buildings.

3. The death-rate at different groups of ages is lower in the Peabody Buildings than for the whole of London with the exception of the ages 0—5 and 15—25.

4. The infantile mortality is much lower in the Peabody Buildings than for all London. During the nine years 1882-90 it averaged in London 151·9, in the Peabody Buildings 139·2 per 1,000 births.

5. The death-rate from diarrhœa is slightly lower, and from enteric fever only half that of the whole metropolis.

6. On the other hand, the diseases more immediately due to direct infection (scarlet fever, diphtheria, and still more whooping cough and measles) are more fatal, and therefore probably more prevalent. If the Metropolitan Asylums' Board would admit cases of measles into their hospitals, the mortality from measles might be very much reduced.

7. The death-rate from phthisis and other tubercular diseases is slightly higher in the Peabody Buildings than for all London.

8. Farr's formula as to the increased mortality with increased density of population, has no application to the Peabody Buildings.

9. The true density that should be considered is the number of persons to each room, not the number of persons on a given acre.

APPENDIX.

Table A.—*Causes of Death at Different Ages during the Two Years* 1888-89 ; *Deaths at* 1886-90 *in the Dwellings of*

Causes of Death.	Deaths during the Two Years						
	Under 1 Year.	1—5.	5—15.	15—25.	25—35.	35—45.	45—55.
All causes	203	204	36	20	41	46	52
I. Small pox	—	—	—	—	—	—	—
Measles	8	32	3	—	—	—	—
Scarlet fever	1	10	3	—	—	—	—
Diphtheria	5	12	5	—	—	—	—
Whooping cough	11	24	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—
Enteric or typhoid fever	—	—	1	—	—	—	—
Ill defined fever	—	—	—	—	—	—	—
Influenza	—	—	—	—	—	—	—
Mumps	—	1	—	—	—	—	—
Diarrhœa	14	8	1	—	—	—	—
Syphilis	3	—	—	—	—	—	—
Gonorrhœa, stricture of urethra	—	—	—	—	—	—	1
Erysipelas	1	—	—	—	—	—	—
Pyæmia, septicæmia	—	—	—	—	—	1	—
Puerperal fever	—	—	—	—	2	2	—
III. Alcoholism	—	—	—	—	1	—	—
IV. Rheumatism	—	—	—	1	1	—	—
Rickets	—	1	—	—	—	—	—
Cancer	—	—	—	1	4	4	3
Tubercular diseases—							
Tabes mesenterica	7	2	1	—	—	—	—
Tubercular meningitis	9	8	—	—	—	—	—
Phthisis	3	5	2	7	23	16	13
Other tubercular diseases	—	5	1	—	—	—	—
Purpura	—	—	—	—	1	—	—
Diabetes mellitus	—	—	—	1	—	—	—
Other constitutional diseases	—	—	1	—	—	—	—
V. Premature birth	36	—	—	—	—	—	—
Atelectasis	3	—	—	—	—	—	—
Congenital debility	—	—	—	—	—	—	—
" malformations	3	1	—	—	—	—	—
Old age	—	—	—	—	—	—	—
VI. Inflammation of brain or its membranes	7	13	4	1	—	1	—
Apoplexy, softening of brain, brain paralysis	—	—	1	—	1	4	3
Epilepsy	—	—	—	—	—	1	—
Convulsions	13	11	1	—	—	—	—
Laryngismus stridulus	—	1	—	—	—	—	—
Other diseases of brain	1	—	—	1	—	—	—
" nervous system	—	—	—	—	—	1	—

APPENDIX.

ll Ages during 1890 *in the Peabody Buildings, and at all Ages during the Five Years*
he Metropolitan Association.

888-89 in Peabody Buildings.							Total Deaths during 1890 in Peabody Buildings.	Total Deaths during 5 Years 1886-90, in Dwellings of Metropolitan Association.
55—65.	65—75.	75 and upwards.	Age unknown.	Males.	Females.	Total.		
44	38	18	9	342	369	711	432	424
—	—	—	—	—	—	—	—	—
—	—	—	—	21	22	43	21	16
—	—	—	—	4	10	14	13	6
—	—	—	—	7	15	22	3	7
—	—	—	—	15	20	35	42	13
—	—	—	—	—	—	—	—	—
1	—	—	1	2	1	3	2	2
—	—	—	—	—	—	—	—	2
—	—	—	—	—	—	—	3	—
—	—	—	—	—	1	1	—	—
—	—	—	—	6	17	23	8	15
—	—	—	—	1	2	3	2	3
—	—	—	—	1	—	1	—	—
—	1	—	—	—	2	2	—	2
—	—	—	—	1	—	1	1	—
—	—	—	—	—	4	4	—	1
—	—	—	—	1	—	1	1	—
—	—	—	—	1	1	2	—	4
—	—	—	—	—	1	1	1	—
5	2	—	—	7	12	19	16	5
—	—	—	—	6	4	10	8	4
—	—	—	—	10	7	17	5	2
5	—	—	—	39	35	74	49	56
—	—	—	—	1	5	6	3	3
—	—	—	—	—	1	1	—	1
—	—	—	—	1	—	1	—	—
—	—	—	—	—	1	1	—	—
—	—	—	—	19	17	36	17	9
—	—	—	—	2	1	3	1	—
—	—	—	—	—	—	—	3	—
—	—	—	—	2	2	4	—	—
2	5	13	—	7	13	20	14	14
—	—	—	—	12	14	26	14	9
1	2	—	—	7	5	12	13	9
—	—	—	—	—	1	1	2	—
—	—	—	—	16	9	25	12	36
—	—	—	—	1	—	1	2	1
—	—	—	—	2	—	2	3	—
1	—	—	—	2	—	2	—	1

Table A *Contd.—Deaths at Different Ages during* 1888-89 ; *at all Ages during* 1890 *in th*

Causes of Death.	Deaths during the Two Years						
	Under 1 Year.	1—5.	5—15.	15—25.	25—35.	35—45.	45—55.
Cardiac diseases	—	1	3	3	4	4	6
Embolism, thrombosis	—	—	—	—	—	1	—
Other diseases of blood vessels	—	—	—	—	—	—	1
Croup	—	5	1	—	—	—	—
Laryngitis	2	3	1	—	—	—	—
Bronchitis	34	31	1	1	1	2	9
Pneumonia	11	14	—	1	1	2	1
Pleurisy	—	—	—	—	—	1	—
Emphysema, asthma	—	—	—	—	—	—	2
Other diseases of respiratory system	1	2	—	—	—	—	1
Dentition	4	1	—	—	—	—	—
Sore throat, quinsy	—	—	—	—	—	1	—
Diseases of stomach	—	1	—	—	—	—	1
Enteritis	3	1	—	1	—	—	—
Peritonitis	—	—	—	—	—	1	—
Obstructive diseases of intestines	1	—	—	—	—	—	2
Cirrhosis of liver	—	—	—	—	—	—	1
Jaundice	—	—	—	—	—	—	—
Other diseases of digestive system	1	—	—	—	—	—	1
Addison's disease	—	—	—	—	1	—	—
Acute nephritis	—	1	—	—	—	—	—
Bright's disease	—	1	1	—	—	2	4
Diseases of bladder	—	—	—	—	—	—	—
Other diseases of urinary organs	—	—	—	—	—	—	—
Abortion, miscarriage	—	—	—	—	—	1	—
Puerperal convulsions	—	—	—	—	—	—	—
Other accidents of childbirth	—	—	—	1	1	—	—
Diseases of locomotive system	—	—	—	—	—	—	—
,, integumentary system	1	1	—	—	—	—	1
Accident or negligence	5	1	4	—	—	—	—
Suicide	—	—	—	—	—	1	—
Marasmus	13	5	—	—	—	—	—
Dropsy	—	—	—	—	—	—	—
Debility, atrophy, inanition	2	—	—	—	—	—	1
Other causes not specified or ill defined	—	2	1	1	—	—	1
Totals	203	204	36	20	41	46	52

Peabody Buildings, and during 1886-90 *in the Dwellings of the Metropolitan Association.*

1888-89 in Peabody Buildings.							Total Deaths during 1889 in Peabody Buildings.	Total Deaths during 5 Years 1886-90, in Dwellings of Metropolitan Association.
55—65.	65—75.	75 and upwards.	Age unknown.	Males.	Females.	Total.		
8	3	—	1	13	20	33	17	15
—	—	—	—	—	1	1	1	2
—	—	—	—	—	1	1	—	—
—	—	—	—	3	3	6	3	7
—	—	—	—	3	3	6	2	1
13	17	3	1	51	62	113	71	78
1	1	—	—	20	12	32	21	25
1	—	—	—	2	—	2	1	—
2	—	—	—	2	2	4	—	2
—	—	—	—	3	1	4	5	8
—	—	—	—	3	2	5	4	3
—	—	—	—	1	—	1	—	1
—	1	—	—	1	2	3	2	1
—	1	—	—	2	4	6	6	2
1	—	—	—	1	1	2	1	3
—	—	—	—	1	2	3	1	3
1	—	—	—	2	—	2	2	2
—	1	—	—	1	—	1	—	—
—	1	—	—	2	1	3	—	5
—	—	—	—	—	1	1	1	—
—	—	—	—	1	—	1	—	—
—	—	—	—	5	3	8	6	2
—	1	1	—	1	1	2	2	1
—	—	—	—	—	—	—	—	2
—	—	—	—	—	1	1	—	—
—	—	—	—	—	—	—	1	—
—	—	—	—	—	2	2	1	—
—	—	—	—	—	—	—	1	—
—	—	1	—	1	3	4	—	—
1	2	—	1	9	5	14	15	18
—	—	—	—	1	—	1	1	3
—	—	—	—	11	7	18	8	—
1	—	—	—	—	1	1	—	9
—	—	—	—	1	2	3	—	6
—	—	—	5	7	3	10	—	3
44	38	18	9	342	369	711	432	424

TABLE B.—*Financial Statement for the Year ending* 31*st December*, 1890.

FIRST TRUST.

Capital Account.

DEBIT—	£	s.	d.
Amount as per last report	300,347	16	4
Balance of income	7,535	14	7
	307,883	10	11

CREDIT—	£	s.	d.
Land and buildings	268,885	7	–
Cash at Bank of England	987	4	1
Ditto at interest, with second Trust	38,000	–	–
Ditto in hands of secretary	10	19	10
	307,883	10	11

Income Account.

RECEIPTS—	£	s.	d.
Rents—			
Spitalfields Estate	1,061	5	–
Islington ,,	3,386	19	9
Shadwell ,,	1,751	8	9
Westminster ,,	1,913	10	3
Chelsea ,,	622	11	3
Bermondsey ,,	683	13	–
Old Pye Street ,,	3,096	6	3
Interest, &c., on Investments	1,162	13	3
	13,678	7	6

EXPENDITURE—	£	s.	d.
Rates, gas, water, superintendence, and repairs—			
Spitalfields Estate	292	8	8
Islington ,,	1,965	9	6
Shadwell ,,	842	12	7
Westminster ,,	681	16	10
Chelsea ,,	337	6	2
Bermondsey ,,	426	13	2
Old Pye Street ,,	1,137	11	10
Expenses of management	458	14	2
Balance to capital account	7,535	14	7
	13,678	7	6

TABLE B *Contd.—Financial Statement for the Year* 1890.

SECOND TRUST.

Capital Account.

DEBIT—	£	*s.*	*d.*
Amount as per last report	694,442	3	5
Balance of income	21,120	7	7
	715,562	11	–
Due to—			
Public Works Loan Commissioners	122,333	6	8
Lord Rothschild and others	90,000	–	–
First Trust	38,000	–	–
	965,895	17	8

CREDIT—	£	*s.*	*d.*
Land and buildings	964,960	10	8
Cash at Bank of England	927	17	–
Ditto in hands of secretary	7	10	–
	965,895	17	8

Income Account.

RECEIPTS—	£	*s.*	*d.*
Rents.—Estates—			
Blackfriars Road	3,849	4	–
Stamford Street	4,052	12	6
Southwark Street	3,204	13	9
Pimlico	6,979	2	–
Whitechapel	3,496	12	3
Bedfordbury	2,048	14	6
Great Wild Street	4,544	6	–
Orchard Street	5,117	10	9
Whitecross Street	10,967	4	–
Clerkenwell	3,057	13	6
Little Coram Street	2,734	10	3
	50,052	3	6

EXPENDITURE—	£	*s.*	*d.*
Rates, gas, water, superintendence, and repairs.—Estates—			
Blackfriars Road	1,390	6	2
Stamford Street	2,119	8	6
Southwark Street	1,033	10	3
Pimlico	2,004	3	4
Whitechapel	1,378	10	–
Bedfordbury	592	19	1
Great Wild Street	1,350	15	3
Orchard Street	2,139	–	7
Whitecross Street	4,677	4	10
Clerkenwell	924	2	5
Little Coram Street	797	7	8
Interest on loans, &c.	9,618	13	3
Expenses of management	905	14	7
Balance to capital account	21,120	7	7
	50,052	3	6

Discussion *on* Dr. Newsholme's Paper.

The President intimated that much credit was due to Dr. Newsholme for his evident care to secure accuracy, and the cautious and logical manner in which he had dealt with one of the leading questions of the hour, the housing of the poor. The problem was one not easy of solution in London, from its vast extension, which rendered it difficult to determine whether it was most expedient and practicable to build on the surface or to tower upwards on restricted areas, from economic and similar conditions, to suit the circumstances of those who desired to secure the healthiest abodes with the closest proximity to their work. The figures collected showed that lofty buildings, in exceptionally good hygienic conditions, and with judicious arrangements for their management, fulfilled their purpose in a satisfactory manner; but they cover but a small portion of a very large question, and in no way touched the contention underlying Dr. Farr's law. He, the President, could give several striking examples within his personal knowledge where the pressure of population on a confined area was attended with sickness and death, both of which were materially diminished by simply relieving the overcrowding, all other conditions remaining unchanged. This, however, in no way diminished the value of Dr. Newsholme's contribution to our Proceedings, which would be very useful as a guide for the future, and entitled him to all the commendation he would doubtlessly secure.

Mr. Noel A. Humphreys congratulated Dr. Newsholme and the Society upon the very valuable paper which he had read. It was a paper which was the result of much laborious work, and he believed it to be almost the first instance in which an active medical officer of health, representing the new school of health officers, who devote their whole time to sanitary duties, had read a paper before the Society. He sincerely hoped that Dr. Newsholme's example would be followed by others. The subject of the mortality in Peabody Buildings was one in which he felt peculiar interest. More than thirteen years ago he undertook to write for a medical journal a paper on this very subject. At that time he made the acquaintance of Mr. Crouch, and it was in great measure owing to their intercourse that Mr. Crouch was induced to undertake the collection of the statistics that had been placed before the Society by Dr. Newsholme. Before that time the returns of deaths were made by the superintendents, and were very incomplete, and there was no attempt to bring into account the hospital deaths. He ventured however to think that Dr. Newsholme was inclined to attach rather too much importance to these statistics of improved dwellings, and he (Mr. Humphreys) was convinced there was a great deal still to be done before any really useful comparison could be instituted between the mortality of any such buildings and that of the whole of London. He was quite sure that a very large portion of the hospital deaths remained out of account, and, practically speaking, no workhouse deaths were brought into it. It might not perhaps be generally known that in London there was an increasing number of deaths recorded in the workhouse infirmaries. The percentage had steadily increased from 9 per cent. ten years ago to 13 per cent. now. If it were borne in mind that the Peabody population was essentially a working population, its due proportion of workhouse deaths must be at least 20 per cent., and therefore he was inclined to think that at least 20 per cent. should be added to Dr. Newsholme's rates of mortality for the proportion that really occurred in workhouses. The residents of the Peabody Buildings were undoubtedly specially selected. They were peopled with the working class in work, who, if they fell out of work, notwithstanding the liberality shown by the trustees and their agents, had to leave the Buildings, finally gravitated to workhouses, and there died. He was therefore sure that any attempt to compare the rates of mortality in such dwellings with those of the general population involved the risk of very serious fallacy. Dr. Farr did not require defending, but with regard to his so-called law of density, it must be remembered that his calculations were based upon thirty years' statistics, ending with the year 1870. During that whole period the death-rate in England was practically stationary, and the relation between density and mortality was constant in a remarkably continuous degree. The Public Health Acts of 1872 and 1875 may however be said to have repealed Dr. Farr's law of density. During the years 1871-80 the death-rate fell from 22·3 to 21·4, and in the last ten years, 1881-90, it had further fallen to 19 per 1,000, and the principal decline had occurred in the largest towns, thus changing the relation of mortality to density. In accordance with the Census Act of 1890, an attempt was about to be made to ascertain the numbers of families occupying less than four rooms. He thought that this information would open up possibilities in the way of density calculation which had never been opened before, and would enable medical officers of health to construct new statistics of density which would be of incalculable value.

Sir Rawson W. Rawson said that Dr. Farr's law was applied to a very different state of things from that existing in the Peabody Buildings. It was not density in well regulated and well sanitated buildings, but density in the crowded unsanitary decaying buildings of large cities, and therefore he did not think that Dr. Farr's law was at all affected by any evidence arising out of the facts which were gathered from the results of the Peabody Buildings. His object in rising was to call attention to one fact drawn from the statistics which he thought would be of interest, especially to Mr. Martin. It would appear from the statement under the head of "Mortality from all causes," that during the three years which the record covered the proportion of the mortality among the Peabody population which occurred in public hospitals was a fraction of one-fifth, viz., 19·5. He did not know how far that calculation would apply more generally, but it was a valuable one, and in the table which followed the mortality in the four years 1886-89 was, in the Peabody Buildings, 18·8, in the Industrial Dwellings, 12·5, and in the dwellings of the Metropolitan Association, 15·7; but in the latter two the deaths in hospital were not included, and therefore in each of these two cases at least 20 per cent. had to be added if the proportion was the same as in the mortality in the Peabody Buildings.

Dr. NEWSHOLME: Only in one of those cases.

Sir RAWSON W. RAWSON said that in the Metropolitan Association then the deaths in hospitals were included. In that case it was a remarkable fact that in the Peabody Buildings the mortality was 18·8, and in the dwellings of the Metropolitan Association 15·7. That very wide difference arose probably from a different method of recording, and it was rather important. He thought that one of the great advantages of this paper was that it ought to provoke inquiry extended over a much larger number of similar buildings in different parts of the country, so that they might learn whether that class of buildings was of advantage to the population in the points of health and longevity or not. Dr. Newsholme had expressed an opinion that in the centre of London it was an essentially inevitable method for providing for the labouring population; but he had also shown that, as in the case of Battersea, if the labourers could live in a different style of buildings under different circumstances at a short distance from the crowded centres of the metropolis, and could proceed backward and forward daily to their work, their health was better and their life was prolonged. The Society could scarcely have a more important question for examination. It seemed from the paper that as regards enteric fever and diarrhœa the Peabody Buildings showed a favourable return, although the latter of those diseases affected an excessive proportion of children existing in the Peabody Buildings. That excess of children was a remarkable feature. Why should that excessive proportion exist? There seemed to be a large number of single men occupying the Peabody Buildings, and he thought the subject was worthy of examination. He hoped that Mr. Crouch would favour them with information upon that point. It appeared to him that there was some peculiarity in the distribution of the population in those buildings. Dr. Newsholme had stated that in the first year of life the mortality of the children was in favour of the Peabody Buildings, but that in the four years from 1 to 5 there was an excess of mortality. It would appear from those statements that the buildings were liable to promote disease and consequent mortality from the close contact of families gathered together in them, so that whilst in one respect they had a healthier and more comfortable habitation, they were exposed, more particularly the junior portion, to the infection of those diseases—measles, whooping cough, diphtheria, &c.—which counteracted in some respects the other advantages, such as the provision of water, cleanliness, ventilation, &c., enjoyed by the inmates. He hoped that the paper would provoke inquiry into these subjects for the benefit of the working population, for the promotion of whose comfort and improvement the Royal Statistical and so many other societies were banded together, and he believed not without success.

Mr. F. H. JANSON said, as the deputy chairman of one of the three associations whose operations had been commented upon by Dr. Newsholme, he was glad to have an opportunity of expressing his commendation of the paper which had been read, and which contained some most valuable statistics. At the same time he wished to observe that the comparison instituted between the Peabody Buildings and those of the other associations that had been named, was to some extent fallacious. The statistics of Dr. Newsholme's paper were very largely derived from the experience of the Peabody Trust. The Metropolitan Association with which he (Mr. Janson) was connected, was the forerunner by many years of the efforts made in the cause of giving the working classes better housing. The Association commenced operations as far back as 1845, under a charter of incorporation of that year; and was established by some leading philanthropists and professors of sanitation of that day, in order to show, if it could be shown, that decent buildings could be constructed for the dwellings of the industrious classes, and still return a fair interest for the outlay. The public at large were thus induced to enter the field, and by uniting in joint stock enterprise, to assist in providing much better accommodation for those classes than could be expected from those who were merely actuated by philanthropic motives. In those years they had to deal with London as it existed when Field Court represented the general character of the habitations of the poor. But the Peabody Trust is in the nature of an eleemosynary association. Mr. Peabody, in a great burst of philanthropy, bequeathed two large sums of money for the purpose of affording accommodation to the poor of London. The Association with which he (Mr. Janson) was connected, confined its operation to furnishing healthy buildings intended for the artizan class: and the rooms in the Peabody Dwellings were let at much lower rents than the Metropolitan Association, or the Improved Industrial Dwellings Company could afford to take. The bequests of Mr. Peabody's will were, as is well known, made with a view to providing better accommodation for the *poor of London*, an expression which could hardly be supposed to include the families of workmen earning wages approaching 24*s*. per week, the class which, judging from the paper read that evening, are the principal occupiers of the Peabody Buildings. The Trustees would have conferred a great boon upon the really poor had they placed their buildings in situations where poverty existed in a chronic form, but when erected. as in some cases they have been, in close proximity to those of other associations who have to find dividends, though limited ones, for their shareholders, the Trustees expose the latter to a somewhat unfair competition, which acts injuriously to the cause of providing good and healthful accommodation for the working class at moderate, but still at remunerative rents.

Mr. W. N. Adler said with regard to Mr. Humphreys's strictures, that Mr. Crouch had informed him that in the Peabody Buildings every care was taken to include the deaths which occurred in the infirmaries of workhouses. It must however be remembered that if a tenant suffered from chronic illness, it was generally the case that he was not able to pay his rent, after a little time he would receive notice to quit, and he went to the workhouse, and eventually died. But that was a factor which only indirectly disturbed the mortality rate. He was sorry that in Table III the actual deaths for the several groups of ages had not been subjoined to be compared with the calculated number. They must all be very careful in dealing with these figures because of exceptional circumstances. In connection with the 4 per cent. dwelling in the East End of London, there the mortality showed a rate of about 9 per 1,000, but last year it rose to 13 per 1,000. (In these Buildings deaths in hospitals were not included.) The matter was investigated, and it turned out that four or five children were taken ill with measles; they recovered; the first day they went out they caught cold and they all died, and that raised the rate of mortality for those buildings from 9 to 13. It might be taken that during the last years, 1888-90, there were very great fluctuations in the mortality. In 1888 and 1889 the mortality in the Peabody Buildings was 375 and 336, but in 1890 it rose to 432, so that there were nearly 100 more deaths in 1890 than in 1889. The ratios for 1,000 were as follows for London in 1889; the corrected death-rate was 18·47, in Peabody Buildings 17·13: but in 1890 the rate of mortality in London was 21·7, that was an advance of 3·23, and in the Peabody Buildings the rate was 21·94, or an advance of no less than 4·8 per 1,000. He understood that that was the first occasion when the rate of the mortality of the Peabody Buildings was greater than that shown for the whole of London. He thought the excess arose from the scourge of the influenza, which must be held to be of an infectious character, and which would make itself felt more in the Peabody Buildings and many other block dwellings than elsewhere. He saw in the analysed returns for 1890, the number of deaths from influenza in the Peabody Buildings was given as only three, but they must combine with them the deaths that arose from tubercular diseases, pneumonia, bronchitis, &c., which all showed a marked increase in 1890. These figures accentuated the fact that the disadvantage of these blocks of buildings was, that diseases especially due to direct infection were more prevalent there than in other places. In that respect those who promoted the cottage buildings were doing good work, for they had an immense advantage over huge blocks of buildings. He had lately been taking some interest in endeavouring to promote cheap fares for the working classes, with the view of getting as many as possible to live in the suburbs, where alone cottage buildings could be put up. He called the attention of the County Council to the desirability of taking advantage of the fact that the leases of important tramways are now falling in. The North Metropolitan Tramways, he was glad to say, had voluntarily come forward and had intimated to him that they would work their tramway cars at low fares in the East End, not only in the morning and evening, but throughout the whole of the day. This paved the way for a like reduction by the omnibus and railway companies.

Mr. F. HENDRIKS wished to call attention to the remarkable fact disclosed by the paper, that in a population which was thirteen times as dense as the rest of London, the rate of mortality had not exceeded that of the rest of London. He would like to know what were the cubical contents *per* inhabitant of these dwellings, because that was a very important factor.

Dr. NEWSHOLME: 380 cubic feet per head.

Mr. F. HENDRIKS asked if the author of the paper had formed any opinion of what was the average of the cubical contents of the buildings inhabited by the remaining portion of the population, in order that it might be seen whether they had more or less cubical space in the Peabody Buildings, because he did not think that calculation *per* area was exactly convincing. Although the people were apparently more crowded in the densely peopled Peabody Buildings, they enjoyed the advantage of open spaces and parks just as well as the others. He believed that some people who would reform the census returns had been desirous of getting at particulars of the cubical contents of dwellings in different parts of England. That was perhaps not possible to arrive at now, but at the same time the author of the paper might have some data with regard to the Peabody Buildings in connection with their relative breathing space to each inhabitant as compared with that of other dwellings.

Mr. R. E. FARRANT said: As managing director of the Artizans' Dwellings Company, he would like to say a few words, especially in the absence of Mr. Crouch. Sir Rawson Rawson had asked a very pertinent question, why there were so many children in these dwellings. He thought he could answer that question from his own experience. His company had built about 5,000 cottages in the suburbs of London, and had spent altogether over 2 million £. In the cottages there was a considerable less density of population. The rental of rooms in cottages was very much less than in dwellings. The cost of land in central positions was greater than in the suburbs, and the cost of building block dwellings was higher than the cost of the same accommodation in cottages, and the working man who had any regard for the health of his family would spend, and did spend, as much of his income as he could afford on his home. Taking the rental of the cottages, it was about 1*s.* 6*d.* per room per week. The cost of Peabody and other rooms in block dwellings was considerably higher than that. He did not think that any capital employed in erecting working men's dwellings should pay a higher rate of interest than $4\frac{1}{2}$ per cent. If possible it should be less. Before the Royal Commission for the Housing of the Poor, he contended that the provision of dwellings for the working classes was one of the safest of investments, and ought to rank with the debenture stock of a first class railway. His own company had just received from one of the largest insurance companies an application for 30,000*l.* of its $4\frac{1}{2}$ preference stock, for which the insurance company would pay $12\frac{1}{2}$ per cent premium. The time was coming, he believed, when the building of artizans' dwellings would have such a financial status that money would be got at $3\frac{1}{2}$ per cent. With reference to the number of children, the practice of his company was, that if a man and his wife without children applied for three rooms, the answer was, "No, you can only have two;" but if a man came with four or six children, he was taken in preference to the man with no children. They did not think that they came up to their maximum of economic occupation unless there were about two persons to each room. Sometimes a man wanted to put six people in two rooms; he was of course rejected. He had been haunted sometimes by the fear that in building block dwellings accommodating 750 or 1,000 people on an acre, he might be told that the work he was doing was tending, not to the ultimate well being of the working classes, but to their sickness and degradation. He did not believe it. He thought that dwellings built with the full amount of cubic air space, with the highest sanitary conditions and conveniences, could be extended almost indefinitely, to the great advantage of the community.

Mr. A. H. Bailey thought that a word of caution was required about comparisons of rates of mortality. The element of age was of essential importance in this matter. For example, take the cases of New Zealand and Great Britain: in the latter the mortality of late years had been about 19 per 1,000, in New Zealand it was considerably less; but it must not be assumed that the relative rate of mortality of Great Britain and New Zealand was to be tested by such comparisons, because there were, so to say, no old people in New Zealand, but a great number here. In the same way an erroneous impression might be formed if it was said that the mortality was so much in Peabody Buildings, and so much more in the whole of London. He was not clear whether the deaths among the inhabitants of Peabody Dwellings were correctly traced among the deaths in hospitals, infirmaries, and other places. Rates of mortality did not and could not differ to the extent that would appear in some of the tables.

Mr. David F. Schloss wished to say a word as a member of the Metropolitan Asylums Board, Secretary of the Sanitary Committee of the Jewish Board of Guardians, and a Director of the Tenements Dwellings Company. The Asylums Board was rather blamed for not admitting to their hospitals cases of measles; but they were not allowed to do so, because the infection from measles was so rapid that before a child could be removed to a hospital the rest of the family would catch the infection. In the 4 per cent. buildings the average death-rate so far had been 9 per 1,000. It was unduly high last year in consequence, as Mr. Adler had said, of the death of a whole family from measles. Some question had been raised as to what might be called the selection of lives in the Peabody and similar Buildings. He did not believe that it was true, as was frequently asserted, that only well-to-do artizans could get into that class of property. In the 4 per cent. dwellings the average weekly wages was supposed to be, in one block 15*s*., and in two blocks of the East End Dwellings Company the average wages was supposed to be 20*s*. or less. But the tenants of all well-managed blocks were people of comparatively regular habits, fairly free from intemperance, and willing to earn regular money. Now that was a distinctly marked selection as compared with tenement houses. He agreed with what fell from Sir Rawson W. Rawson, that the comparison was not a fair one between old rotten property and comparatively new and specially well built property; it was a comparison of what he might call unscientific density with scientific density. Mr. Hendriks asked what was the cubic space in the ordinary tenement buildings; 380 feet was given as the average in the Peabody Buildings for children as well as for adults. The usual Local Government Board requirements were 300 feet, and half of that for children, which was very much lower, but, as a fact, the cubic space actually found in a very large number of ordinary tenement houses was much lower than the Government standard. He would invite the attention of medical officers of health to the extent of overcrowding in ordinary buildings. His company succeeded fairly well, but, when they tried to buy up those places and put them into repair, they were outbid by the house knackers, who, being allowed to overcrowd the houses, could afford to pay a price which a company, treating its tenants properly, could not afford to give; in this way their operations were checked.

Dr. S. R. Lovett said he took very great interest in these large model dwellings. He represented a central metropolitan district—St. Giles'—which at one time was very densely populated, but had been very much relieved of its population through the operation of Lord Cross's Act. The district had not only been relieved of the density of his population, but also of typhus fever. When he was first medical officer of health to the district, there was not a single year when typhus fever did not break out on the areas of Great Wild Street and Little Coram Street, but now it was unknown in the district. Under the provision of the Customs and Inland Revenue Act, 1890, he had inspected three of these large blocks of buildings which had been erected in those areas; he had visited every room, and seen every water-closet, cistern, and dust hole, and with the exception of one or two rooms that required limewhiting, he had found the whole of the buildings to be in good sanitary order. The people in the Great Wild Street block were of a superior artizan class. There were a great many babies, because the population consists largely of young or middle aged married adults.

Mr. F. B. Crouch said that with regard to the question of selection of the tenants, and to their general appearance of superiority, Dr. Newsholme's statement of the occupation of the tenants, and the fact that their average wages only amount to 23*s*. 8*d*. a week, should speak for themselves. As special attention however is directed towards keeping the tenants thoroughly up to the mark in the matter of cleanliness and order, this in itself is apt to cause outsiders to think that the Peabody tenants belong to a superior station in life than they do in reality.

Dr. J. F. J. Sykes said that there was one table in the paper which he missed sadly, viz., a table giving the length of residence of the persons in the buildings. It was one thing for an individual to leave the building and go direct to hospital to die, the hospital deaths would include such a case, but another thing for an individual to remove to some other residence and die there or subsequently in hospital. For instance, the mortality of a common lodging house might appear prodigiously high if the individuals who left the lodging house went straight to hospital and died, or abnormally low if they went to another common lodging house or other house and died at the last place of residence or in hospital after removal from the latter. He thought it would be an immense assistance in estimating the value of the mortality returns if they had a table showing the permanency or temporary character of the residence. He was afraid that there was a tendency in comparing block dwellings and cottage dwellings to confuse the crowding of dwellings with the crowding of persons. He did not think that Dr. Farr considered his law anything more than a rough estimate. It was a comparison of population to square space, but that question had nothing whatever to do with the density of buildings; they might be half empty. It was not the mere density of buildings so much as the density of individuals that tended to increase mortality. Everyone who had been in a crowd knows how utterly impossible it was to breathe with comfort after half-an-hour's close personal contact. That was exactly what took place when dwellings were closely packed on a superficies, but when they were built up the same number of people were distributed through a larger cubic space. Infection by actual contact was favoured by the block dwellings, and that was one of the things which in future would have to be provided against. At present, beyond the regulations of the buildings themselves, there was no power legally to remove infected persons from those dwellings. Legislative provision will have to be made to combat the danger of increased spread of infection from aggregation of population in block dwellings.

Mr. G. G. Chisholm said there appeared to be a general agreement in the meeting that Dr. Newsholme's criticism did not apply to Dr. Farr's law in the form in which it was enunciated by Dr. Farr. The meeting had been told that that law was practically repealed by an Act of Parliament. That meant, he supposed, that the law applied to the average and tolerably uniform conditions that prevailed over England when the law was formulated, and the operation of the Public Health Act was to differentiate the conditions in such a manner that the law was no longer applicable. In order to ascertain whether there was a form of the law applicable to model dwellings, it would be necessary to compare dwellings of this class with others similar in all essential respects, except that they differed as regards the density of population—differed, for example, with respect to the amount of open space round them or within their area. That made it all the more a matter of regret that Dr. Newsholme was not able to get the statistics he sought for with regard to the Shaftesbury Park Estate.

Dr. G. B. LONGSTAFF thought it was rather a dangerous matter to compare a highly specialised population, such as that inhabiting Peabody Buildings, with such a very varied population as that of the whole of London. He would suggest that it would be better to compare it with a part of London uniformly built on. Some evidence had been obtained by the County Council with respect to the insanitary areas in the east of London, showing that the question of sobriety was a factor of great importance. The poor Jews of the East End of London, though living in extremely insanitary conditions, were a very sober race, and it had been found that the portions of London mostly inhabited by them did not exhibit such a high death-rate as would be found among so-called Christians under similar circumstances.

Mr. JOHN B. MARTIN, as treasurer of the hospital to which undoubtedly any present at the meeting would be carried if they were run over as they left the building, ventured to throw out an interjection rather than to make a speech. He was very much struck by the mortality in hospitals and infirmaries of the inhabitants of Peabody Buildings, amounting to some 15 to 17 per cent. It seemed to be a remarkable fact deserving of investigation. What was the explanation of this phenomenon? Had the Peabody organisation touched a class of the population which was essentially different in its ways and modes of thought and habit from the population at large, or was it the fact that the conditions of their removal in cases of illness were such that they were driven to hospitals and infirmaries to die? With regard to the main question of the paper, he had been anticipated by previous speakers in the suggestion that it was not entirely fair to compare the population of the Peabody Buildings or model lodging houses with the population at large. In the first place, on Table XVII, the superficial area of the various buildings was put down and added up. It showed nearly 1,183,000 superficial square feet with a population of 20,374; but if they were to put into the hands of a competent architect the problem how to erect one block and accommodate 20,374 persons, he thought that considerably more than 1,183,000 square feet would be required. There would have to be provided room for main thoroughfares and minor thoroughfares, as well as for courts and quadrangles, &c. Previous speakers had also hinted at the various conditions of life of the population of these buildings. He was speaking without experience, but he had always been given to understand that there was a well defined reluctance in certain classes to inhabit the Peabody Buildings, from that want of privacy which they obtained in houses outside such organisations, and he took it that it would be only those who were more regular in their lives, and whose comings-in and goings-out would be less subject to invidious remark who inhabited such buildings, and their average expectation of life would be consequently better. He would therefore be prepared to hear that the ratio of illegitimate births was very low in those buildings. Then again if they considered the effect of destroying a rookery in any given area and replacing it by a model lodging house, what was the result? As had been said an ineligible population would be crowded out; but where must they go? In many cases they must be added to the population of the rookeries round about the Peabody Buildings. Large families of poor parents were rejected from these model lodging houses because they wanted to crowd into three rooms a family for whom four were requisite, and the mortality outside the buildings was therefore increased. During the reading of the paper he had been very much struck by the fact that it dealt with London in particular, and he thought it would be very much to the advantage of the Society if at some time Dr. Newsholme or someone else would contribute a paper on the subject as illustrated in New York and Philadelphia. In New York tenement houses were the rule; in Philadelphia the exception. When a person went "up town" in New York to about 116th Street he was taken by an elevated railway on the level of the roofs of acres, or even miles, of tenement houses. He was sorry to say that his acquaintance with these was limited to looking into the windows. In Philadelphia it was entirely different; there every man had his own little house. The two different systems of those two great cities were so marked that he thought a contribution to the annals of the Society with regard to the results of the two systems would be of the utmost value.

Dr. Newsholme, in reply, referred first to Mr. Humphreys's valuable remarks, whose first criticism was that workhouse deaths had not been included. Having gone over the individual schedules himself, he could speak to the fact that the workhouse deaths were included. He could not speak to all, but so far as inquiry could ensure this they were complete. With regard to Dr. Farr's law, he was glad to find that in the discussion it had been generally agreed that the law had been abrogated by the sanitary improvements which followed in the track of the Public Health Act of 1875. But that was not the general opinion outside the Statistical Society, and in medical papers and elsewhere there were constant references to the law, as though it held good to the same extent as it did twenty or thirty years ago, that density of population was the cause of a high mortality. It had even been proposed that in any sanitary inquiry the influence of density should first be discovered by means of Farr's formula, thus "eliminating the element of density from the analysis of the causes of insalubrity." This evidently presupposed that density itself, apart from the insanitary conditions which often accompany it, was a cause of high mortality. The excessive number of children in the Peabody Buildings was partially explained in a foot note in the paper; large families were preferred as tenants of those buildings. Mr. Hendriks asked what was the average cubical space per head in ordinary houses? He (Dr. Newsholme) had no figures bearing on this point. The only thing that was possible in that direction was to ascertain the number of persons living per room, which would be obtainable to some extent from the next census. Mr. Bailey struck a note of warning as to the fallacies introduced by differences of age distribution in the populations compared; but that source of fallacy had been already eliminated in the paper, as shown in Tables VII and VIII. Mr. Schloss had alluded to a death-rate of 9 per 1,000 in certain tenement dwellings. It was obvious that those figures referred to a very artificial population, or the death returns were incomplete and therefore untrustworthy. Dr. Sykes asked about the length of residence of tenants in the Peabody Buildings. Speaking offhand, from a statement furnished by Mr. Crouch, there were 100 or 200 tenants in the Peabody Buildings of twenty years' standing. Whenever a notice had to be served about 20 per cent. appealed to the officers to be allowed to remain. He took it that Dr. Sykes's density of individuals and not of dwellings simply came to a question of the number of persons living in a room of a given size; and there again he hoped we shall get valuable information from the forthcoming census. He did not entirely agree with Mr. Martin that the building of a large block of dwellings necessarily drove people into surrounding rookeries, for he thought a gradual improvement occurred. He had to thank Mr. Crouch, sen., and Mr. Crouch, jun., for a very large proportion of the information he had been able to lay before the Society, and he was gratified that his paper had given rise to such a very valuable discussion.

The President proposed a very cordial vote of thanks to Dr. Newsholme for his valuable paper, which was agreed to unanimously.

The proceedings then terminated.

MISCELLANEA.

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I.—*Commercial History and Review of* 1890.

The following is taken from the supplement to the *Economist* of 21st February, 1891, in continuation of similar extracts for previous years:—

"A year of great financial disturbance, but nevertheless, so far as this country is concerned, of moderate commercial prosperity; such, in brief, is the record of 1890. It was a year in which trade had exceptional difficulties to encounter. In the earlier months high rates for money prevailed, and exercised a restrictive influence upon business of all kinds. A period of comparative ease and quiet succeeded, lasting from March to about the middle of July, during which trade and Stock Exchange speculation alike showed renewed activity. But troublous times quickly followed, and lasted practically to the close of the year. The financial difficulties of the Argentine Republic, which had been growing rapidly more and more acute, culminated in a revolution which swept the Celman Administration from power. The change of government was undoubtedly a change for the better, for the Celman gang were rotten and corrupt to the core. Naturally, however, it further weakened what little confidence there was left in the stability of Argentine finance, and the financial houses who had been ministering to the wants of the Government found themselves in a position of great difficulty. Large masses of securities which they had taken firm in the hope of being able to retail them to investors at a profit, remained upon their hands. These it had become impossible to sell except at a ruinous loss, and it was equally difficult to obtain advances upon them. Their capital was thus locked up, and in order to raise funds to carry on their business they were forced to sell consols and other good securities. These sales soon attracted attention, and the air grew thick with rumours as to the embarrassments of this and that firm and institution. Week by week the alarm and distrust thus generated deepened, until a climax was reached when, on the 15th November, it was announced that the great house of Baring Brothers had been compelled to close its doors. Happily, however, the position of the firm had previously been made known to the Bank of England, and the governor had thus been enabled to take timely measures of precaution. An arrangement had been made with the Bank of France for a loan of 3,000,000*l.* of gold on the security of Treasury bills, and a further 1,500,000*l.* of the metal was obtained from the Russian Ministry of Finance by the sale of Treasury bonds. In conjunction, moreover, with the Bank of England, and acting on its invitation, our large banks and financial institutions combined to guarantee the liabilities of the Barings, and these protective measures being announced at the same time as the failure of the firm, the panic which otherwise would undoubtedly have ensued was averted. Still credit received a shock from which it has not yet even fully recovered, and trade suffered in consequence. And there were other difficulties to contend against. Political and financial troubles unsettled and restricted trade with South America; in South Africa the collapse of the wild speculation in mining properties, and subsequent bank failures, imposed a check upon all commercial transactions; and in the United States tariff and silver legislation combined to paralyse business for a time. In the States great hopes had been founded upon the passing of the Bills for increasing the silver purchases of the Treasury, and upon the McKinley Tariff Act. It was expected that the combined effect of these would be to send up prices, to stimulate American industry, and to increase the demand for all classes of commodities. Accordingly traders and stock exchange speculators strained their credit in order to accumulate stocks of commodities and securities, which they hoped to be able to sell at higher prices later on. But the expected boom did not take place. True, the McKinley Act did raise prices. In this respect its promoters found it only too effectual, for a general election of members of Congress was pending, and the constituencies, disgusted at finding the cost of living enhanced while wages had not risen, turned against the Government, and returned a sweeping democratic majority. This condemnation of the Act was fatal to its success as a measure for stimulating American industry, for capitalists, who might have been tempted to establish new or extend existing industries had they been assured of the maintenance of high protective duties, became disinclined to make the venture when it became evident that the permanence of the tariff could not be depended upon. Instead of trade expanding, therefore, it diminished in volume, and those who had loaded themselves up with heavy stocks or entered into onerous future engagements found it necessary to press for help from the banks. Many of them failed to get the assistance they needed, and as one heavy failure after another took place, credit was undermined and business became utterly disorganised. The acute stage of the crisis had been passed, and some improvement had set in before the end of the year; but the fact remains that for some time our trade was injuriously affected, not only by the higher duties of the McKinley tariff, but also by the unsettlement of business in the States which resulted from that unwise piece of legislation.

Against these obstacles to trade must be placed the quietude of European politics, for, apart from such minor incidents as our dispute with Portugal and the squabbles of the Balkan States, there has been nothing to interrupt the peaceful course of affairs, while possible causes of future quarrels have been removed by the agreements into which the great powers have entered for the partition of Africa.

"In circumstances such as we have indicated it is a matter for congratulation that our trade has not only suffered no diminution, but, on the contrary, has continued to grow, although certainly not to the extent that there seemed reason to hope for at the beginning of the year. It is true that the volume of our foreign trade was slightly smaller in 1890 than it was in the previous year. This is not quite apparent from the Board of Trade returns, but a little examination of the figures will make it clear. A comparison half year by half year of the imports and exports of 1890 and 1889 brings out the following results:—

Imports.

	1890.	1889.	Increase or Decrease.	
	£	£	£	Per cnt.
Half year ending 30th June	206,927,000	207,934,000	− 1,007,000	− 0·5
,, 31st December	243,959,000	219,661,000	− 5,702,000	− 2·6
Year	420,886,000	427,595,000	− 6,709,000	− 1·6

Exports of British and Irish Produce.

	1890.	1889.	Increase or Decrease.	
	£	£	£	Per cnt.
Half year ending 30th June ...	127,556,000	119,410,000	+ 8,146,000	+ 6·8
,, 31st December	135,987,000	129,525,000	+ 6,462,000	+ 5·0
Year	263,543,000	248,935,000	+ 14,608,000	+ 5·9

The imports of 1890 show, as compared with 1889, a decrease of 6,709,000*l.*, or 1·6 per cent. The exports of home produce, on the other hand, exceeded those of 1889 by 14,608,000*l.*, or 5·9 per cent., and the aggregate value of imports and exports combined was consequently greater than that of the previous year by about 8,000,000*l.* In order however to deduce from these figures any conclusion as to the value of trade, allowance must be made for the movement in prices. When that is done (see Appendix H), it is found that of the decrease of 6,709,000*l.* in the value of our net imports last year, about 5,000,000*l.* was due to the lower prices paid for the imported produce, and that only 1,700,000*l.*, or about 0·3 per cent., represents a falling off in quantity. On the other hand, we got such higher prices for our exports that if we had shipped the same aggregate quantity as in 1889 they would have yielded nearly 15,900,000*l.* more than was realised in that year. As a matter of fact, however, the increase in value last year, as compared with 1889, did not exceed 14,600,000*l.*, and it is evident, therefore, that there was a falling off in quantity corresponding to the difference between an increase of 15,900,000*l.* and one of 14,600,000*l.*, or, in other words, a decrease of about ½ per cent. Imports and exports combined, there was a decrease in quantity of about 0·4 per cent., which compares with the movement in immediately preceding years thus:—

Volume of Our Foreign Trade. Increase or Decrease per Cent. as compared with previous Years.

	Imports Retained for Home Consumption.	Exports of Home Produce.	Imports and Exports.
	Per cnt.	Per cnt.	Per cnt.
1890	Decrease 0·31	Decrease 0·51	Decrease 0·39
'89	Increase 11·25	Increase 3·71	Increase 8·08
'88	,, 3·42	,, 4·64	,, 3·94
'87	,, 5·07	,, 4·80	,, 4·93
'86	Decrease 0·37	,, 5·33	,, 1·94
'85	Increase 3·28	Decrease 3·84	Decrease 0·26

"Last year's decrease compares badly with the expansion shown in previous years, but two points in connection with it should be noted. In the first place the decline took place almost entirely in the later months of the year, and the wonder rather is that such a crisis as that which we were then passing through, accompanied as it was by a still more severe dislocation of credit in the United States, did not produce a greater curtailment of trade. And further, the falling off in imports is partly accounted for by the fact that our own good harvest enabled us to dispense to some extent with foreign supplies of foodstuffs; while, as regards some of the raw materials for our industry, such as wool, cotton, and timber, unusually large stocks were carried forward from 1889 to 1890, and smaller imports, therefore, suffice for the full supply of our wants. The trifling curtailment of our foreign trade, moreover, was much more than counterbalanced by an expansion of the home trade. That such was the case is evident from the tenor of the reports as to the condition of our chief industries which are published herewith. It is shown also by the returns of the bankers' clearing houses, which compare with those of 1889 (deduction being made in the case of the London establishment of the clearings on stock exchange and consols pay days) thus:—

	1890.	1889.	Increase.
	£	£	£
London clearing house	6,025,907,000	5,928,234,000	96,673,000
Manchester ,,	162,018,000	149,790,000	12,228,000
Birmingham ,,	42,319,000	35,856,000	6,463,000
Newcastle-on-Tyne clearing house	20,938,000	19,582,000	1,356,000

"And further testimony to the same effect is afforded by the statistics of railway traffic. These are not yet complete, but taking the fifteen chief English lines whose accounts are summarised in the appendix, the comparison with 1889 is as follows:—

	Passengers and Parcels.		Merchandise.		Minerals.	
	1890.	1889.	1890.	1889.	1890.	1889.
	£	£	£	£	£	£
First six months	12,276,000	11,569,500	8,998,600	8,670,800	6,540,300	6,298,600
Second ,, ...	14,380,700	14,241,800	9,597,400	9,420,200	7,015,900	6,729,500
Total for year	26,656,700	25,811,300	18,596,000	18,091,000	13,556,200	13,028,100
Increase or decrease first six months....	+ 706,500 = 6·1 per cnt.		+ 327,800 = 3·8 per cnt.		+ 241,700 = 3·8 per cnt.	
Increase or decrease second six months	+ 138,900 = 1·0 ,,		+ 177,200 = 1·9 ,,		+ 286,400 = 4·2 ,,	
Total increase or decrease for year	+ 845,400 = 3·3 per cnt.		+ 505,000 = 2·8 per cnt.		+ 528,100 = 4·1 per cnt.	

"These figures also bear witness to a slackening in the latter half of the year, and this would have been much more apparent if the statistics of the Scotch lines had been available, for business north of the Tweed was greatly curtailed by the blowing out of the pig iron furnaces at the beginning of October, and subsequently by the great railway strike, which brought traffic for a time almost to a standstill, and caused factories and workshops to be closed for want of coal.

"One satisfactory feature of the year's business is that in 1890 our farmers fared better than they had done for many years. All the grain crops were above the average, and although prices remained low, they were, at all events, higher on the average than in 1889. Grazing farmers probably did not do so well, for they had to pay high prices for their store cattle, while the prices of all but the better qualities of beef and mutton were kept down by the large importations of foreign meat. Dairy farming, however, appears to have been fairly remunerative, and it is significant of an improved state of things that the demand for farms was better last year than it had been for a long time before. Farmers have been gradually accommodating themselves to their altered conditions, and with rents and working expenses reduced, they are able to make a profit at prices which would formerly have been considered ruinously low. And their position would be still more and very materially improved if means could be devised of bringing them into closer connection with consumers. The present modes of distribution stand greatly in need of reform. They enrich the middlemen at the expense of producers and consumers, and both these would benefit if more direct relations between them were established. Appended are our usual tables of prices:—

Gazette Average Price of Wheat (per Imperial Quarter) in United Kingdom immediately after Harvest, 1884-90, *and Total Average Gazette Price of Calendar Years.*

Periods.	1890.		1889.		1888.		1887.		1886.		1885.		1884.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
After harvest	35	9	31	2	36	4	29	11	33	1	32	4	35	1
Calendar year average	31	10	29	9	31	10	32	6	31	–	32	10	35	8

Comparative Gazette Prices of Grain.

Week.	Wheat.						Barley.						Oats.					
	1890.		1889.		1888.		1890.		1889.		1888.		1890.		1889.		1888.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
Aug. 2	35	–	30	8	33	8	23	4	19	11	19	4	20	4	20	6	18	6
9	36	3	30	11	34	6	24	5	19	10	24	9	20	5	19	5	18	–
16	36	6	30	9	35	9	25	4	19	5	18	8	20	3	19	5	18	9
23	36	5	30	5	36	1	26	2	19	6	21	11	20	1	18	11	20	9
30	35	9	31	2	36	4	31	3	24	6	26	10	19	2	19	6	19	9
Sept. 6	34	6	31	–	37	9	30	11	29	9	24	2	19	1	19	2	18	10
13	33	7	30	2	38	1	30	3	32	5	29	9	18	8	17	2	18	9
20	32	1	29	5	34	11	29	11	28	11	32	5	17	9	17	2	17	2
27	31	6	29	1	32	2	29	9	29	–	29	4	17	8	16	11	16	4
Oct. 4	31	2	29	3	30	7	29	5	29	4	29	1	17	5	16	8	16	3
11	30	11	29	4	30	11	29	3	29	8	29	1	17	5	16	8	16	4
18	30	10	29	10	32	1	29	7	30	4	28	10	17	3	16	4	16	10
25	31	–	30	4	32	2	29	10	30	11	29	5	17	3	16	11	16	5
Nov. 1	31	6	30	3	32	3	29	7	31	3	28	10	17	3	16	8	16	5
8	32	1	30	3	31	8	29	5	31	–	28	2	17	3	17	1	16	2
15	32	8	30	2	31	11	29	3	30	4	27	10	17	6	17	–	16	9
22	32	9	30	–	31	9	28	11	29	11	27	8	17	8	17	4	16	6
29	32	7	30	1	31	8	29	–	29	9	27	4	17	8	17	6	16	9
Dec. 6	32	3	30	2	31	3	28	9	30	2	27	4	17	10	17	7	16	9
13	32	2	30	2	30	10	28	5	29	10	27	1	17	10	17	11	16	10
20	32	4	30	1	30	8	28	8	30	4	26	11	17	6	18	2	16	3
27	32	3	29	10	30	7	28	5	30	6	26	10	17	11	18	2	16	3

"Speaking generally, the movements in the prices of commodities during the year were confined within comparatively narrow limits. There were very violent fluctuations in iron and steel, partly the result of gambling in pig iron warrants, and partly due to trade disputes. In cotton also the variations were frequent and wide, the disturbing causes being varying crop estimates and the 'cornering' operations conducted by Mr. Steenstrand, which utterly collapsed at the beginning of September. Another article which fluctuated a good deal is wool. On the whole, however, prices traced a narrow but well marked curve, there being a downward movement in the March quarter, a slight rise in the June quarter, which was continued and became more marked in the following quarter, but gave place to a fresh decline in the closing months of the year. As the result of these movements, the general level of prices, as measured by our 'Index Number,' was slightly lower at the end of the year than it was at the beginning, the figures being:—

	'Index Number,' representing the Combined Prices of Twenty-two Leading Commodities.
1st January, 1891	2224
,, July, '90	2259
,, January, '90	2236
,, July, '89	2161
,, January, '89	2187
,, July, '88	2121
,, January, '88	2230
,, ,, '87	2059
,, ,, '86	2023
,, ,, '85	2098

"The fall for the year is very slight, amounting to no more than ½ per cent., and as has already been pointed out, it is largely due to the fact that we were able to buy certain foodstuffs and portions of the raw materials for our manufactures more cheaply than we were able to do in 1889. That was a benefit, and there was a further gain in the fact that we were able to obtain for our exports higher prices than in the previous year. Here is how the record as to the prices of our imports and exports in 1890 and the previous five years stands:—

Prices of Imports and Exports. Average Rise or Fall as compared with previous Years.

	Imports Retained for Home Consumption.	Exports of Home Produce.	Imports and Exports.
	Per cnt.	Per cnt.	Per cnt.
1890	− 1·38	+ 6·41	+ 1·78
'89	+ 1·14	+ 2·32	+ 1·61
'88	+ 2·89	+ 0·90	+ 2·04
'87	− 1·72	− 0·52	− 1·22
'86	− 5·67	− 5·35	− 5·53
'85	− 5·63	− 4·89	− 5·44

"Of course, the higher prices we obtained for our exports was not all pure gain. During the past year or two the cost of manufacture has been enhanced by an increase in the cost of labour, by dearer coal, and in several other ways. Higher prices for our products, therefore, do not necessarily imply bigger profits for manufacturers. If, however, we may judge from the dividends declared by joint stock companies engaged in different branches of manufacture, the business of 1890 was fairly profitable, although there were noteworthy exceptions, such, for example, as some branches of the iron trade.

"To our working classes 1890 was undoubtedly a year of prosperity, in so far as they were willing to take advantage of it.

Throughout the whole year they enjoyed high wages, there was no lack of employment for their labour, and the cost of living remained low. There is perhaps no better test of the condition of the people than that afforded by the returns of their consumption of such articles as tea, tobacco, beer, and spirits, upon which a considerable portion of their free income is expended. And as regards these, the record for the past three years is:—

Quantities Retained for Home Consumption.

		1890.	1889.	1888.
Tea	lbs.	194,008,500	185,621,800	185,433,700
Coffee	cwts.	256,200	259,309	278,000
Tobacco	lbs.	59,342,500	57,026,400	55,403,900
Wines	galls.	15,018,800	14,158,900	13,500,100
Spirits, home	proof galls.	29,410,400	27,183,400	25,963,600
„ foreign	galls.	8,913,600	8,552,300	8,117,500
Beer...................... ...	barrels	31,248,800	29,823,800	27,874,300

"A stimulus was given to the consumption of tea by the reduction of the duty; but, on the other hand, although 1*s*. a gallon was added to the tax on spirits, the consumption increased at a proportionately greater rate than that of tea; and beer and tobacco, on which taxation remained unaltered, were also consumed in much larger quantities. It is quite evident, therefore, that the purchasing power of the working classes has been materially augmented, and as further testimony to an improvement in their condition, the statistics of pauperism may be cited. At the close of 1889 there were in England and Wales 713,247 persons in receipt of relief, and the proportion of paupers to total population was 2·46 per cent.; while at the end of 1890 the number had fallen to 695,821, and the proportion to population had dropped to 2·37 per cent. That is satisfactory so far as it goes, but it is rather to be regretted that so much more of the increased earnings of the people should have gone in such expenditure as that on beer and spirits, and so little should have found its way into the savings banks, which, as will be seen from the following statement, show a smaller increase of deposits during 1890 than for many years previous:—

	January.				
	1891.	1890.	1889.	1888.	1887.
	£	£	£	£	£
Amount at credit of trustee savings banks	43,336,098	44,861,448	45,959,856	47,156,131	46,653,154
Amount at credit of Post Office savings banks	67,760,621	63,020,925	58,614,600	53,904,127	50,882,383
Total	111,096,719	107,882,373	104,574,456	101,060,258	97,535,537
Increase over previous year	3,214,346	3,307,917	3,514,198	3,524,721	3,707,501

"Another regrettable feature of the year was the frequency of trade disputes, and the bitterness introduced into many of the contests. For these the apostles of the new trade unionism are largely to blame. They have endeavoured to establish a tyranny to which we cannot believe self respecting working men will be disposed to submit. Their demand is that no man shall be permitted to earn his living unless he is prepared to bow to their decrees. The only liberty they are willing to accord working men is liberty to do as they tell them, while the employer is not to be permitted to engage anyone whom they have not stamped with the hall mark of their approval. The attempts of these professional agitators to establish a dictatorship have been the cause of enormous loss and suffering during the past year or two, but it is significant that in nearly every contest into which the men have latterly been led by them they have been worsted. The fact is, that public feeling is revolting against their selfish and dictatorial methods, and certainly not too soon.

"The incidents of the recent financial crisis are so fresh in people's minds that they need not be dwelt upon here. It is rather with the lessons to be derived from it that people are now concerned. Of these, one of the most obvious is that, looking to the lack of ordinary prudence which the Barings are now shown to have displayed in the conduct of their business, investors must not put such trust as they were formerly accustomed to do in the knowledge and capacity of the big finance houses. And another is that our banking system needs strengthening, so that it shall not be in danger of breaking down whenever any heavy strain is put upon it. Had it not been that the present Governor of the Bank of England is an exceptionally strong and resourceful man, the probability is that the fall of the Barings would have resulted in a panic more intense and destructive than that which occurred in 1866, upon the failure of Overend, Gurney, and Co. But we cannot depend upon always having an able and courageous man at the helm in time of trouble, and while it is neither necessary nor desirable that the banks should maintain habitually that degree of strength which is required in a panic, it certainly is desirable that they should not be so weak that they cannot, unaided, cope with relatively minor difficulties. Their weakness lies in the smallness of their cash reserves. As Mr. Goschen pointed out in his recent speech at Leeds, they habitually employ their money up to the hilt, and there is consequently no unemployed money to fall back upon when exceptional demands are made upon them. In this respect their position has been growing weaker and weaker year by year, for, relatively to the volume of their transactions, their reserves have been growing smaller and smaller. This could be shown in various ways, but one illustration will suffice. What reserves they have are at the Bank of England, and if we compare the reserve there with the volume of bills and cheques passing through the London bankers' clearing house, the exhibit is a striking one.

	Bank of England Average Reserve.	Amount of London Bankers' Clearing.
	£	£
1890	13,683,000	7,801,048,000
'85	15,137,000	5,511,071,000
'80	16,013,000	5,794,238,000
'75	11,577,000	5,685,793,000
'70	12,400,000	3,914,220,000

"It would be absurd, of course, to argue that every increase in the volume of bills and cheques calls for a proportionate increase in the amount of the cash reserve. Still, these figures sufficiently show that the superstructure of credit has increased far out of proportion to the cash basis upon which it rests, and that the latter needs to be broadened and strengthened. Mr. Goschen has announced that he is endeavouring to induce the banks to take action in this matter, and it is to be hoped that they will see the desirability of doing so, for it is infinitely better that they should act for themselves than that legislative compulsion should have to be used.

"Tariff questions were unpleasantly prominent during 1890, and will be still more to the front this year. Reference has already been made to the McKinley Act, by which the import duties of the United States have been greatly increased. The result of that measure, however, has not been what its promoters expected. Instead of satisfying the American people, it has been to them an object lesson on the evils of a protective policy, and is not unlikely to lead to a movement in the direction of freer trade. The experience of the States, however, is not deterring other nations from following in their steps, and France and Spain have each denounced their existing commercial treaties with a view to adding largely to their present duties. In Canada, again, an election is being fought on the question as to whether or not she should differentiate against the products of this country in favour of those of the United States. And at home we have a party who are advocating a commercial union with the colonies, which must necessarily take the form of a protective tariff imposed by us upon all foreign goods that might compete in our markets with colonial products. This is a chimerical idea, but the supporters of our present fiscal policy must not be content with merely scouting protectionist proposals. They must show why they ought to be rejected, and wherein the advantage of free trade lies. That is a duty which, in their well justified confidence in the strength of their case, they are perhaps a little apt to neglect, and to which they would do well to attend somewhat more closely.

"The course of the money market in 1890 was a more than usually chequered one. The year opened with a 6 per cent. bank rate, which was maintained until the middle of February. During that time the dearness of money had its effect in curbing stock exchange speculation, and also in reducing the volume of trade, and the bank gained strength rapidly, through the contraction of the internal circulation and the influx of gold from abroad. Afterwards, when the rate was reduced by successive reductions of ½ per cent., from 5 to 3 per cent., which was reached about the middle of April, gold continued to come hither, but soon the current began to flow in the opposite direction, and by the latter end of June the bank's stock of the metal had been reduced to 21½ millions, and there seemed a probability of its being still further diminished by exports to the Argentine Republic. The directors accordingly raised their rate to 4 per cent. That advance had not much effect upon the exchanges, and as the market was growing nervous about the state of affairs in Argentine and the possible consequences here, at the end of July a further upward movement to 5 per cent. was considered expedient. This higher rate was maintained for three weeks, but a considerable influx of gold having taken place during that time, a fresh reduction to 4 per cent. was made. Just as before, however, this lower rate after a little led to gold withdrawals, and early in September it became necessary for the directors to retrace their steps, and move up again to 5 per cent. Notwithstanding this, gold continued to be taken for export, and the market was getting into a somewhat excited state, owing to the persistent rumours as to the difficulties of financial houses who were known to be largely interested in Argentine finance. This nervous condition continued for some weeks, during which the market rate was frequently quite up to that of the bank, and it was intensified when, on Friday, the 7th November, the bank directors, after separating the previous day without making any alteration in the rate, suddenly determined to raise it to 6 per cent. The ostensible reason for this advance was the possibility of gold being withdrawn hence to strengthen the Bank of Spain; but the real reason doubtless was that the bank had learnt that the rumours of the embarrassed condition of the Barings were only too well founded. The following week was one of great anxiety. The position of the Barings had been disclosed to the bank, and to guard against a panic a loan of 3,000,000*l.* in gold was, through the good offices of Lord Rothschild, obtained from the Bank of France, and 1,500,000*l.* of gold purchases from the Russian Minister of Finance. The managers of the principal banks and finance institutions were also called together, and agreed to subscribe to guarantee the Barings' liabilities. These measures proved effectual in staving off a panic, although not until it became necessary for the Governor of the Bank of England to caution some of the leading bankers that in refusing to afford their customers the usual facilities for borrowing, they were taking the sure means of undoing all that had been done to restore confidence. So quickly did apprehensions subside, that early in December the bank was able to lower its rate to 5 per cent., at which it stood until the end of the year. The following is our usual ten years' record of rates:—

	1890.	1889.	1888.	1887.	1886.	1885.	1884.	1883.	1882.	1881.
nge bank rate	11 p. ct.	8 p. ct.	9 p. ct.	7 p. ct.	7 p. ct.	7 p. ct.	7 p. ct.	6 p. ct.	6 p. ct.	6 p. ct.
hest „	6	6	5	5	5	5	5	5	6	5
vest „	3	2½	2	2	2	2	2	3	3	2½
rage „	4/10/4	3/14/10	3/6/3	3/6/-	3/-/4	2/16/9	2/19/2	3/11/6	4/2/8	3/9/6
rage market ite best three onths' bills	3/13/11	2/15/6	2/7/-	2/7/3	2/1/-	2/-/9	2/8/1	3/-/8	3/7/3	2/18/-
rket below bank	16/5	19/4	19/3	18/9	19/4	16/-	11/1	10/10	15/5	11/6

European Rates of Discount per Cent. per Annum, 1890.

Cities.	Beginning of Months of 1890.												
	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Avge.
London.													
Bank rate	6	6	5	4	3	3	4	5	4	5	6	5	4·55
Open market	4½	4⅛	3⅛	2¼	2	2⅜	3⅜	4½	3⅜	5	5¾	3¾	3·68
Paris.													
Bank rate	3	3	3	3	3	3	3	3	3	3	3	3	3·00
Open market	$2\frac{15}{16}$	2½	2⅜	2⅜	2½	2½	2⅞	2¾	2¼	2⅞	$2\frac{15}{16}$	2¾	2·64
Vienna.													
Bank rate	5	4½	4	4	4	4	4	4	4½	5	5½	5½	4·52
Open market	5	4	3⅜	3¼	3¼	3¼	3⅝	3¾	4¼	4½	5½	5⅜	4·10
Berlin.													
Bank rate	5	5	4	4	4	4	4	4	4	5	5½	5½	4·38
Open market	4¾	3⅛	3¾	3¼	2¾	3⅝	3⅜	3¼	3	4½	4¾	4⅞	3·75
Frankfort.													
Bank rate	5	5	4	4	4	4	4	4	4	4	5½	5½	4·38
Open market	4½	3¼	3¾	3½	3	3¾	3⅝	3¼	3⅛	4½	5	5	3·86
Amsterdam.													
Bank rate	2½	2½	2½	2½	2½	2½	2½	2½	2½	2½	3	4½	2·80
Open market	2½	2¼	2¼	2¼	2½	2¼	2½	2¼	2¼	2¼	2⅝	3¾	2·47
Brussels.													
Bank rate	4	4	3½	3	3	3	3	3	3	3	3	3	3·20
Open market	3¾	3⅝	3¼	2½	2½	2½	2¾	2¾	2¾	2⅞	2¾	2⅞	2·91
Hamburg.													
Bank rate	5	5	4	4	4	4	4	4	4	4	5½	5½	4·38
Open market	4⅜	3	3⅝	3⅜	2¾	3½	3½	3⅛	3	4⅜	4⅞	4⅞	3·70
St. Petersburg													
Bank rate	5½	5½	5½	5½	5½	5½	5½	5½	5½	5½	5½	5½	5·85
Open market	4	6	5	5½	5½	5½	5½	5	5	5	5	5	5·17

"The movements in the silver market during 1890 are thus succinctly summarised by Messrs. Pixley and Abell :—'For the first three months of 1890 there were few buyers, except for India, and with very steady exchanges the price was maintained at or near 44*d.* fairly well. As early as mid April purchases commenced on New York account, the prospect of immediate legislation in favour of silver being then considered certain. From this time the rise in price commenced, alternated with relapses, which took place as realisations were sometimes forced on the rising market. Eventually it became known that from September the United States Treasury were authorised to purchase 4,500,000 ozs. per month, in lieu of the 2,000,000 ozs. hitherto provided for by the Bland Act, and the rise became rapid and accentuated by purchases for the continental and home coinages. In September 54$\frac{5}{8}$*d.* was reached, which proved the highest price in the year. From this point many sellers came in, but in spite of constant reactions it became gradually apparent that the large floating stock of silver, accumulated early in the year, and said to amount to about 13,000,000 ozs., was a standing menace to the market. The crisis here and in New York forced many weak holders to sell, and the price fell to 45*d.* in November. From this a gradual improvement took place, which was greatly aided by the probable success of even further legislation on the subject in the United States, with a view to purchasing the floating stock before mentioned.' The expectation that there would be further legislation in the States in favour of silver has, it should be added, not thus far been realised. The Senate has indeed passed a free coinage Bill, but that has been hung up by the Congress Committee, and public opinion is declaring itself so adverse to the measure that there is now no prospect of its becoming law. This is very disappointing to the clique of silver producers and speculators, who are the real promoters of the free coinage scheme, and it has proved a disappointment also to the syndicate who have been trying to boom the price of rupee paper. Their efforts in this direction were specially conspicuous when the Act increasing the amount of the United States Treasury purchases was passed, and they then did their utmost to induce investors to believe that the price of silver would go up to 59*d.* per ounce and stay there. But these self interested lucubrations did not produce the desired effect, and investors may congratulate themselves upon having refused the advice so freely tendered to them.

Monthly Fluctuations in Price of Bar Silver.

	1890.		1889.		1888.		1887.		1886.	
	d.	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*
January	44$\frac{7}{8}$	44$\frac{1}{8}$	42$\frac{11}{16}$	42$\frac{3}{8}$	44$\frac{9}{16}$	44$\frac{1}{4}$	47$\frac{1}{8}$	46$\frac{1}{4}$	47	46$\frac{7}{8}$
February........	44$\frac{5}{8}$	43$\frac{11}{16}$	42$\frac{3}{4}$	42$\frac{1}{2}$	44$\frac{3}{16}$	43$\frac{13}{16}$	47	46$\frac{5}{16}$	46$\frac{15}{16}$	46$\frac{1}{2}$
March	44$\frac{3}{8}$	43$\frac{3}{4}$	42$\frac{5}{8}$	42$\frac{1}{4}$	43$\frac{3}{4}$	43	46$\frac{7}{16}$	44$\frac{5}{16}$	46$\frac{7}{8}$	46$\frac{11}{16}$
April	48	43$\frac{7}{8}$	42$\frac{5}{16}$	42$\frac{1}{16}$	42$\frac{7}{8}$	42$\frac{1}{2}$	44$\frac{9}{16}$	43$\frac{1}{4}$	46$\frac{11}{16}$	46
May	47$\frac{1}{2}$	46	42$\frac{1}{4}$	41$\frac{15}{16}$	42$\frac{5}{8}$	41$\frac{5}{8}$	43$\frac{1}{4}$	43$\frac{7}{16}$	46	44$\frac{3}{4}$
June	49	46$\frac{1}{4}$	42$\frac{3}{16}$	42	42$\frac{1}{2}$	42	44$\frac{1}{4}$	43$\frac{11}{16}$	45$\frac{3}{8}$	44$\frac{11}{16}$
July..............	50$\frac{7}{8}$	47$\frac{9}{16}$	42$\frac{5}{16}$	42	42$\frac{5}{16}$	42	44$\frac{7}{16}$	43$\frac{7}{8}$	44$\frac{9}{16}$	42
August	54$\frac{1}{2}$	50$\frac{3}{4}$	42$\frac{9}{16}$	42$\frac{1}{4}$	42$\frac{1}{8}$	41$\frac{15}{16}$	45$\frac{1}{4}$	44$\frac{1}{4}$	42$\frac{5}{8}$	42
September	54$\frac{5}{8}$	50	42$\frac{11}{16}$	42$\frac{3}{8}$	44$\frac{3}{16}$	42$\frac{1}{16}$	45	44$\frac{7}{16}$	45	42$\frac{5}{8}$
October	51$\frac{1}{2}$	48$\frac{1}{8}$	43$\frac{1}{2}$	42$\frac{5}{8}$	42$\frac{3}{8}$	42$\frac{7}{8}$	44$\frac{3}{4}$	43$\frac{13}{16}$	45$\frac{7}{8}$	44$\frac{1}{2}$
November	48$\frac{3}{4}$	45	44$\frac{3}{8}$	43$\frac{1}{8}$	43$\frac{1}{8}$	42$\frac{7}{8}$	43$\frac{15}{16}$	43$\frac{5}{8}$	49	45$\frac{7}{8}$
December	49$\frac{1}{2}$	47$\frac{1}{4}$	44$\frac{3}{8}$	43$\frac{3}{4}$	42$\frac{7}{8}$	42$\frac{5}{16}$	45$\frac{1}{8}$	43$\frac{13}{16}$	46$\frac{3}{8}$	45
Yearly avge.	47$\frac{11}{16}$		42$\frac{11}{16}$		42$\frac{7}{8}$		44$\frac{5}{8}$		45$\frac{3}{8}$	
Highest price	54$\frac{5}{8}$		44$\frac{3}{8}$		44$\frac{9}{16}$		47$\frac{1}{8}$		46$\frac{7}{8}$	
Lowest ,,	43$\frac{11}{16}$		41$\frac{15}{16}$		41$\frac{5}{8}$		43$\frac{1}{4}$		42	

"Upon the new capital applications of the year the *Economist* has reported as follows:—The new company mania, after a pause in January and February, ran on with very considerable force until the first week in August, during which period (five months in all) new securities to the extent of nearly 100,000,000*l.* were brought out, and a considerable portion of them placed. During these five months this market was aided and sustained by a big accession of speculation in New York, where the silver boom for the time being appeared to drive Wall Street mad. Business was enormous, and the rise in all descriptions of prices was astonishing. Then in July came the long threatened Argentine crisis, coupled with a rise in money here to 5 per cent. The speculative spirit on the stock exchange had by this time been carried too far. The demand fell off as if by magic; depression quickly supervened in America, where the senselessness of the silver boom became apparent, and unsoundness in finance and business circles followed in its wake. Here, even before the crisis brought about by the difficulties of Barings had made itself felt, it was seen that the gambling in new securities was at an end. The time for the so-called 'Trusts,' meaning, in reality, company promoting syndicates, was over: the troubles of Allsopp's and some of the foreign brewery companies had withdrawn interest from such overdone concerns, the African gold mining scramble had already been snuffed out; and lastly, not even the names of Barings, nor Murrietas, nor Morton Rose, could induce the public to swallow any more River Plate scrip after the revolution had broken out, and the name of President Celman had become a bye-word. Hence it has been that in the last five months of the year less than 32,000,000*l.* of securities have been brought forward, and even these with less success than attended the introduction of the 100,000,000*l.* in the previous five months. Much too of these diminished applications was represented by railway and other requirements, which would have to be brought out under any circumstances; and such a figure is one the market can readily make light of. The new capital applications for the twelve months compare as under with those of the three previous years:—

	1890.	1889.	1888.	1887.
	£	£	£	£
1st quarter	30,243,000	56,846,000	34,691,000	28,599,000
2nd ,,	59,510,000	49,866,000	74,955,000	35,535,000
3rd ,,	39,103,000	34,526,000	22,951,000	16,059,000
4th ,,	13,709,000	48,198,000	27,570,000	17,873,000
	142,565,000	189,436,000	160,149,000	98,066,000

"This comparison shows us pretty clearly the duration of the latest mania for new companies and new investments. It was absent in 1887, when our new commitments were something below an average It awoke into life with 1888, and ran through the whole of that year and of 1889, and through the first seven months of 1890. It was then pulled up short, and the subscriptions solicited in the quarter now closing have been the smallest of any one quarter during the four years covered by our table. Roughly classifying the applications for the year, they may be summarised as follows:—

	£
Home and colonial Government and corporation loans	14,000,000
Foreign government and corporation loans	10,000,000
Railways (home and foreign)	31,000,000
Trusts and financial companies	21,000,000
Breweries	10,700,000
Mining companies	6,800,000
Miscellaneous demands	49,000,000
	142,500,000

"The following is a statement of the new capital created during the past decade:—

	Capital Created and Issued.			Actual Money Calls.		
	In England.	England and Elsewhere.	Total.	In England.	England and Elsewhere.	Total.
	£	£	£	£	£	£
In 1890....	125,898,000	16,667,000	142,565,000	120,717,000	20,290,000	141,007,000
,, '89	178,930,038	28,107,000	207,037,038	152,012,254	15,791,885	167,804,139
,, '88....	140,758,000	19,497,000	160.255.000	125,864,000	11,388,000	137,252,000
,, '87....	96.770,000	14,439,000	111,209,000	84,161,000	9,507,000	93,668,000
,, '86....	93,946,000	7,927,000	101,873,000	70,342,000	17,134.000	87,476,000
,, '85....	55,558,000	22,414,000	77,972,000	62,824,000	15,051,000	77,875,000
,, '84....	91,520,000	17,511,000	109,031,000	74,255,000	16,348,000	90,603,000
,, '83....	69,650,000	11,500,000	81,150,000	63,600,000	13,300,000	76,900,000
,, '82....	95,300,000	50,250,000	145,550,000	62,150,000	32,500,000	94,650,000
,, '81....	97,800,000	91,600,000	189,400,000	63,400,000	51,850,000	115,250,000

"The financial crisis of 1890 was severely felt on the stock exchange, where the year's transactions resulted in a general fall, the extent of which may be seen by reference to our usual table in the Appendix. When the restrictions of the 6 per cent. bank rate were removed business became animated enough, and, in spite of warnings, prices became very much inflated, partly owing perhaps to the investment of the considerable commercial profits earned in 1889, and partly to the buoyant and confident feeling which prevailed, although it was not justified by the actual situation. In the third quarter of the year, however, the heavy piling up of nearly all kinds of stock which had taken place eventually began to tell, and the last three or four months of the year formed a period of almost uninterrupted liquidation and collapse. This was most noticeable first in the American railroad department, in which speculators had much overloaded themselves, partly because of the false hope that they would reap benefit from the new silver and tariff legislation. But the great collapse of the year took place in the River Plate issues in connection with the revolt in Buenos Ayres, resulting from the long period of financial maladministration and extravagance, and with the subsequent downfall of the house of Baring Brothers. From this event, its causes and its consequences, the market has not yet recovered, the shock being felt in every direction. The most stable securities suffered with the others; indeed, the selling of heavy blocks of consols just before the crisis was an alarming shadow cast before by coming events. The home railway department had reasons within itself for depression, arising principally from the large increase in the cost of labour, fuel, and material, which swallowed up the growth in earnings, and rendered the profits of 1890 rather disappointing. Labour difficulties, too, hampered traffic, and in the case of the Scotch lines have proved most disastrous. Apart from the difficulties at the River Plate, the foreign department has had little to disturb it, the course of European politics being especially placid, although in the financial condition of both Spain and Portugal there has been cause for anxiety. Farther afield, trouble in central America has called for attention, but disturbance amongst the petty States there is now almost looked upon as chronic, and occasions little surprise. To the course of American railroad securities we have already alluded, and amongst foreign and colonial railway stocks there was little feature during the year. Indian railway securities fluctuated in connection with the violent changes in the silver market, and some of the Mexican lines were affected favourably by the commutation of the Government subvention. Neither of the great Canadian lines fulfilled the anticipations of the market as regards prosperity. The feature of the mining department was the increasing output of gold from the South African mines, seeming to bear witness of an earnest attempt to place the industry on a footing worthy of more confidence than hitherto. Amongst miscellaneous securities, the shares of the English banks gave way upon the involvement of the principal of them in the Baring guarantee, and those institutions doing business in South Africa suffered from the two serious bank failures which occurred there. The year was naturally a trying one for the new fashioned 'Trust' companies. Some of them obtained powers from their shareholders to conceal the nature of their investments, and as they have thus still further shaken confidence in their style of business their shares fell during the year somewhat heavily. Brewery descriptions have been weak in connection with the attention which has been bestowed upon the licensing and 'tied house' systems. Thus other causes in various departments have supplemented the effects of the great crisis in tending towards a general depreciation of quotations throughout the stock markets. The crisis however overshadowed them all, and it will long be remembered. But there is the consolation that it must have cleared the atmosphere, and fortunately its effects seem to have fallen principally upon a narrow circle of rash speculators rather than upon the public in general, who seemed to possess sufficient caution to hold aloof when the danger threatened."

The following is the table of contents of the "Commercial History and Review of 1890," with Appendix:—

The Troubles of the Year—Volume of Trade—Agriculture—Prices of Commodities—Condition of the Working Classes—The Crisis and the Banks—Tariff Questions—The Money Market—Silver—New Capital Applications—The Stock Exchange.

Trade Reports.

The Corn Trade—The Cattle Trade—Preserved Meat—Colonial and Foreign Produce—Wines and Spirits—Raw Materials—Metal and Coal Trades—Shipbuilding and Shipping—Textiles.

Appendix.

Wholesale Prices of Commodities in London and Manchester: Average of Six Years, 1845-50; Selected Dates, 1869-89; and Monthly, 1890—Wholesale Prices, 1845-90: Proportionate Results—Bank of England—Banks of France, Germany, Austria, and Belgium—London Bankers' Clearing House Returns—Banking Deposits in the United Kingdom—The Foreign Trade of the United Kingdom—Our Foreign Trade of 1890 Compared with that of 1889—Railway Traffic Receipts in 1890 and 1889—The Stock Markets.

II.—*Prices of Commodities in* 1890. *By* A. SAUERBECK, ESQ.

THE following table shows the course of prices of forty-five commodities during the last thirteen years as compared with the standard period of eleven years 1867-77, which in the aggregate is equivalent to the average of the twenty-five years 1853-77 (see the Society's *Journal*, 1886, pp. 592 and 648):—

Summary of Index Numbers, 1867-77 = 100.

	Vegetable Food (Corn, &c.).	Animal Food (Meat, &c.).	Sugar, Coffee, and Tea.	Total Food.	Minerals.	Textiles.	Sundry Materials.	Total Materials.	Grand Total.	Silver.*	English Wheat Harvest.†	Average Price of Consols.‡	Average Bank of England Rate.‡
1878	95	101	90	96	74	78	88	81	**87**	86·4	108	$95\frac{3}{16}$	$3\frac{3}{4}$
'79	87	94	87	90	73	74	85	78	**83**	84·2	64	$97\frac{1}{2}$	$2\frac{3}{8}$
'80	89	101	88	94	79	81	89	84	**88**	85·9	93	$98\frac{3}{8}$	$2\frac{3}{4}$
'81	84	101	84	91	77	77	86	80	**85**	85·0	97	100	$3\frac{1}{2}$
'82	84	104	76	89	79	73	85	80	**84**	84·9	100	$100\frac{1}{2}$	$4\frac{1}{8}$
'83	82	103	77	89	76	70	84	77	**82**	83·1	93	$101\frac{3}{16}$	$3\frac{9}{16}$
'84	71	97	63	79	68	68	81	73	**76**	83·3	107	101	3
'85	68	88	63	74	66	65	76	70	**72**	79·9	111	$99\frac{1}{4}$	3
'86	65	87	60	72	67	63	69	67	**69**	74·6	96	$100\frac{3}{4}$	3
'87	64	79	67	70	69	65	67	67	**68**	73·3	114	$101\frac{3}{4}$	$3\frac{3}{10}$
'88	67	82	65	72	78	64	67	69	**70**	70·4	100	101	$3\frac{3}{10}$
'89	65	86	75	75	75	70	68	70	**72**	70·2	107	98	$3\frac{6}{10}$
'90	65	82	70	73	80	66	69	71	**72**	78·4	110	$96\frac{1}{2}$	$4\frac{5}{10}$
Average 1881-90	71	91	70	78	73	68	75	72	**75**	78·3	103	100	$3\frac{5}{10}$
'78-87	79	95	76	84	73	71	81	76	**79**	82·1	98	$99\frac{1}{2}$	$3\frac{2}{10}$

* Silver 60·84 per oz. = 100. † Harvest 28 bushels per acre = 100.

‡ Consols and bank rate actual figures, not index numbers; consols $2\frac{3}{4}$ per cent. from 1889.

The figure for all commodities remained unchanged during the past year, though the average was really half a point lower, as a very close calculation would have made 1889 slightly above, 1890 slightly below 72. Of the various groups of articles we find no quotable change in the case of corn and sundry materials, while meat, textiles, and colonial produce ruled lower, and minerals higher than in the previous year. If we examine the separate articles in the price tables, we observe nothing very striking in the first two groups, except that barley ruled higher than in the four preceding years, and that maize remained very low owing to an enormous crop in 1889; the lower classes of meat have been more affected by the constantly increasing importations than the better sorts. In the third group we have to note a fall in sugar, while coffee has been higher than in any year since 1875; this article has occupied a very high level for the last four years, and the prices of Brazil have more than doubled since 1885. Metals were all a little higher than in 1889, and coals were very dear. Merino wool, jute, flax and hemp declined, and cotton has also given way in the latter part of the year. Oils—except petroleum—and soda ruled somewhat higher, but nitrate and timber were lower than in the preceding year.

The monthly movements of the average index number of all the forty-five descriptions of commodities were thus:—

January, 1889....	72·6	October, 1889....	72·1	July, 1890....	71·2
February, ,, ...	73·5	November, ,, ...	73·7	August, ,, ...	72·8
March, ,, ...	72·1	December, ,, ...	73·7	September, ,, ...	72·2
April, ,, ...	72·0	January, 1890....	73·2	October, ,, ...	72·9
May, ,, ...	71·4	February, ,, ...	72·7	November, ,, ...	71·2
June, ,, ...	71·6	March, ,, ...	71·5	December, ,, ...	71·1
July, ,, ...	72·6	April, ,, ...	71·2		
August, ,, ...	71·4	May, ,, ...	70·8	January, 1891....	71·1
September, ,, ...	72·1	June, ,, ...	70·5	February, ,, ...	71·5

The monthly movements are of course more easily influenced by accidental changes, and therefore less reliable than the yearly averages, but it is evident from these figures that the upward movement in 1888 and 1889 has been seriously checked. There were numerous causes to account for this, suffice it to name the two most important ones: the influence of the McKinley bill and the financial and bourse crises in November. The year closed 2½ points or 3½ per cent. lower than 1889.

Silver experienced violent fluctuations during the past year owing to the legislation in the United States, and it may be interesting to examine the monthly changes of its index number (end of each month):—

December, 1889....	72·3	May, 1890....	76·6	October, 1890....	79·7
January, 1890	73·3	June, ,, ...	78·5	November, ,, ...	80·1
February, ,, ...	72·3	July, ,, ...	83·6	December, ,, ...	78·9
March, ,, ...	72·2	August, ,, ...	89·6	January, 1891....	77·0
April, ,, ...	76·6	September, ,, ...	82·2	February, ,, ...	73·1

In comparing these fluctuations with the index numbers of commodities it must be admitted that they had a very small, if any, influence on the movements of the latter. There was indeed a simultaneous rise in July and August, which, however, as regards commodities is partly explained by the greater activity of the industry to produce goods for the American market before the new tariff came in force. Looking at the prices from May to September of those articles which are partly or wholly imported from the East, we find an important advance only in the case of rice, a very small improvement in wheat, tea, and linseed, but a decided fall in cotton and jute. Of course, if the higher price of silver had been maintained, and if as a consequence the East had taken less silver, and exported less or imported more goods, it might have had a more important effect on the prices of commodities.

The following figures give in each case the average index number of ten years (see the Society's *Journal*, 1888, pp. 155 and 156, and the dotted line in the diagram of the *Journal*, 1886):—

1868–77	100	1874–83	90	1878–87	79
'71–80	96	'75–84	87	'79–88	78
'72–81	95	'76–85	85	'80–89	76
'73–82	93	'77–86	82	'81–90	75

The number of 72 in 1890 was therefore 28 per cent. below the standard period of 1867-77, 9 per cent. below the period 1878-87, but only 4 per cent. below the last ten years. As I pointed out before, the year 1887 fitly closes a period in which prices reached their lowest level, and the average prices during the ten years 1878-87, and also those of the last ten years 1881-90, which may be useful for a comparison, are inserted in my tables. It is quite possible that from 1888 we have commenced a period of gradually improving, or at least more stable prices, and it may perhaps not be out of place to examine here the supply of precious metals for monetary purposes. The production of gold amounts now to fully 24 million £, and if we deduct 15 million £ (which, I believe is a very full figure) for the consumption in the arts and for the requirements of the East, we retain 9 million £ for monetary purposes in the gold using countries. Add to this 14 million £, coinage value, in the United States of 54 million ozs. fine silver, and only 3 million £ new silver for coinage in Europe, we obtain a total increase of 26 million £, which in my opinion is quite adequate for the requirements of the increased population and trade, and so far as the supply of money is concerned we need not for the present fear any disturbing influence on prices, provided that no alteration is made in the monetary laws. Changes, however, may occur, though not very likely for some time to come, through the adoption of the gold standard in Austria or Russia, through sales of silver by Germany, Holland, or the States of the Latin Union, or through the repeal of the American silver bill.

The arithmetical mean of the forty-five index numbers, which for the last two years was 72, has, as in former years, again been subjected to two tests:—

Firstly, by using the same index numbers of the separate articles, but calculating each article according to its importance in the United Kingdom, when the mean for 1890 is 72·1 against 71·8 in 1889.

Secondly, by calculating the quantities in the United Kingdom at their actual values (the production on the basis of my price tables, the imports at Board of Trade values, and consequently a considerable portion according to a different set of prices) and at the nominal values on the basis of the average prices from 1867-77. In this case the mean is 73·9 against 72·3.

The result differs somewhat from that obtained by ordinary index numbers, particularly in the second calculations, and this is solely due to the high export price of coals. This article forms a very large item in the trade of this country, if the forty-five descriptions of commodities are taken according to quantity, and an important change in its price must necessarily have a great influence on the results of such calculations.

The following table gives the figures which have served for the second test (see also the Society's *Journal*, 1886, pp. 613—19):—

Movements of Forty-five Commodities in the United Kingdom (Production and Imports).

	Estimated Actual Value in each Period.	Nominal Values at Average Prices of 1867-77, showing Increase in Quantities.	Movement of Quantities 1848-50 = 100.	Movement of Quantities from Period to Period.	Ratio of Prices according to this Table, 1867-77 = 100.
	Mln. £'s and dec.	Mln. £'s and dec.			
Avge. 1848-50	219·8	294·8	100	—	74·6
" '59-61	350·1	382·7	130	30% over 1849	91·5
" '69-71	456·6	484·6	164	27% " '60	94·2
" '74-76	537·8	538·4	183	—	99·9
" '79-81	489·7	578·5	196	19% over 1870	84·6
" '84-86	445·7	610·1	207	—	73·0
1887	423·1	627·7	213	—	67·4
'88	443·2	640·8	217	—	69·2
'89	492·3	680·7	231	17% over 1880	72·3
'90*	496·6	672·2	228		73·9

* 1890 subject to correction after publication of the complete mineral produce returns.

The nominal values at the uniform prices of 1867-77 show the exact movement of quantities in the aggregate. After a considerable increase in 1889 there is now a small decrease, principally due to the reduction in the imports of textiles and sundry materials.

*Average Prices of Commodities.**

No. of Article	0	1	2	3	4	5	6	7	8	1—8	9
		Wheat.		Flour.	Barley.	Oats.	Maize.	Potatoes.*	Rice.		Beef.
Year.	Silver.†	English Gazette.	American.	Town Made White.	English Gazette.	English Gazette.	American Mixed.	Good English.	Rangoon Cargoes to Arrive.	Vegetable Food. Total.	Prime.
	d. per oz.	*s.* and *d.* per qr.	*s.* and *d.* per qr.	*s.* per sack (280 lbs.).	*s.* and *d.* per qr.	*s.* and *d.* per qr.	*s.* per qr.	*s.* per ton	*s.* and *d.* per cwt.		*d.* per 8 lbs.
1876........	$52\frac{3}{4}$	46 2	48	41	35·2	26·3	$26\frac{3}{4}$	135	9	—	62
'77........	$54\frac{7}{8}$	56·9	55	45	39·8	25·11	$27\frac{1}{4}$	130	10	—	61
1878........	$52\frac{9}{16}$	46·5	48	38	40·2	24·4	25	155	10	—	61
'79........	$51\frac{1}{4}$	43·10	48	36	34	21·9	$23\frac{3}{4}$	130	9·7	—	55
'80........	$52\frac{1}{4}$	44·4	51	39	33·1	23·1	$25\frac{3}{4}$	130	9·1	—	58
'81........	$51\frac{11}{16}$	45·4	52	40	31·11	21·9	$27\frac{3}{4}$	85	8·4	—	56
'82........	$51\frac{5}{8}$	45·1	48·6	40	31·2	21·10	31	95	7·5	—	60
1883........	$50\frac{9}{16}$	41·7	45	36	31·10	21·5	$27\frac{3}{4}$	105	8·1	—	61
'84........	$50\frac{11}{16}$	35·8	36 6	31	30·8	20·3	$25\frac{1}{4}$	75	7·8	—	58
'85........	$48\frac{5}{8}$	32·10	35	29	30·1	20·7	23	75	7	—	52
'86........	$45\frac{3}{8}$	31	35	28	26·7	19	21	80	6·7	—	49
'87........	$44\frac{5}{8}$	32·6	34	28	25·4	16·3	$21\frac{1}{4}$	85	6·10	—	43
1888........	$42\frac{7}{8}$	31·10	37	30	27·10	16·9	$23\frac{1}{2}$	80	7·1	—	48
'89........	$42\frac{11}{16}$	29·9	35	29	25·10	17·9	20	80	7·3	—	47
'90........	$47\frac{11}{16}$	31·11	35·6	29	28·8	18·7	20	70	7·3	—	47
Average 1881–90	$47\frac{5}{8}$	$35\frac{1}{2}$	$39\frac{1}{2}$	32	29	$19\frac{1}{2}$	24	83	$7\frac{1}{4}$	—	52
'78-87	50	40	$43\frac{1}{2}$	$34\frac{1}{2}$	$31\frac{1}{2}$	21	25	102	8	—	$55\frac{1}{2}$
'67–77	$58\frac{1}{4}$	$54\frac{1}{2}$	56	46	39	26	$32\frac{1}{2}$	117	10	—	59
	Index Numbers (or Percentages) of Prices, the Average of 1867-77 being 100.										
1876........	86·7†	85	86	89	90	101	82	115	90	738	105
'77........	90·2	104	98	98	102	100	84	111	100	797	104
1878........	86·4	85	86	83	103	94	77	132	100	760	104
'79........	84·2	80	86	78	87	84	73	111	96	695	93
'80........	85·9	81	91	85	85	89	79	111	91	712	98
'81........	85	83	93	87	82	84	85	73	83	670	95
'82........	84·9	83	87	87	80	84	95	81	74	671	102
1883........	83·1	76	80	78	82	82	85	90	81	654	104
'84........	83·3	65	65	65	79	78	78	64	77	571	98
'85........	79·9	60	62	63	77	79	71	64	70	546	88
'86........	74·6	57	62	61	68	73	65	69	66	521	83
'87........	73·3	60	61	61	65	63	65	73	68	516	73
1888........	70·4	58	66	65	71	64	72	69	71	536	81
'89........	70·2	55	63	63	66	69	61	69	72	518	80
'90........	78·4	59	63	63	73	72	61	60	72	523	80

* The annual prices are the averages of twelve monthly or fifty-two weekly quotations potatoes of eight monthly quotations, January to April and September to December.

† Index numbers of silver as compared with 60·84*d.* per ounce being the parity between go and silver at 1 : $15\frac{1}{2}$; not included in the general average.

Average Prices of Commodities—Contd.

No. of Article	10	11	12	13	14	15	9—15	16A	16B	17	18A*	18B*
	Beef.	Mutton.		Pork.	Bacon.	Butter.		Sugar.			Coffee.	
Year.	Midding.	Prime.	Midding.	Large and Small, Average.	Waterford.	Friesland, Fine to Finest.	Animal Food. Total.	British West Indian Refining.	Beet, German, 88 p. c., f.o.b.	Java, Floating Cargoes	Ceylon Plantation, Low Midding.	Rio, Good Channel.
	d. per 8 lbs.	*d.* per 8 lbs.	*d.* per 8 lbs.	*d.* per 8 lbs.	*s.* per cwt.	*s.* per cwt.		*s.* per cwt.	*s.* per cwt.	*s.* per cwt.	*s.* per cwt.	*s.* per cwt.
76........	52	72	58	59	81	135	—	21½	23	26	105	74
77........	49	69	54	51	75	127	—	24½	25½	30	102	77
78........	49	68	55	50	74	122	—	20	21½	25	101	62
79........	45	64	52	48	72	107	—	19	21¼	24	90	58
80........	49	66	54	55	76	125	—	20½	21½	25½	87	61
81........	48	69	57	54	76	123	—	21¼	22	26½	80	49
82........	51	72	60	51	74	125	—	20	21½	25½	65	39
83........	51	73	61	49	72	123	—	19	20¼	24½	76	43
84........	49	64	53	48	70	120	—	13¼	13¼	17½	62	47
85........	44	56	47	45	68	111	—	13½	14¼	17½	60	39
86........	40	62	50	45	67	100	—	11¾	11¾	14¼	68	46
87........	36	52	42	43	61	103	—	11¾	12½	14½	90	78
88........	39	58	47	40	61	100	—	13	13¾	16	80	64
89........	39	63	50	43	66	102	—	16	16½	19	95	76
90........	38	59	45	42	62	100	—	13	12½	15¼	101	83
verage												
81–90	43½	63	51	46	68	111	—	15¼	15¾	19	78	56
78–87	46	64½	53	49	71	116	—	17	18	21½	78	52
67–77	50	63	55	52	74	125	—	23	24	28½	87	64
Index Numbers (or Percentages) of Prices, the Average of 1867-77 being 100.												
76.......	104	114	105	113	109	108	758	94		91	121*	116*
77........	98	109	98	98	101	102	710	106		105	117	120
78........	98	108	100	96	100	98	704	88		88	116	97
79........	90	102	95	92	97	86	655	86		84	103	91
80........	98	105	98	106	103	100	708	89		89	100	95
81.......	96	109	104	104	103	98	709	92		93	92	77
82........	102	114	109	98	100	100	725	87		89	75	61
83........	102	116	111	94	97	98	722	84		86	87	67
84........	98	102	96	92	95	96	677	56		62	91	74
85.......	88	89	85	87	92	89	618	59		62	69	61
86........	80	98	91	87	91	80	610	50		50	78	72
87........	72	83	76	83	82	82	551	52		51	104	122
88........	78	92	85	77	82	80	575	57		56	92	100
89........	78	100	91	83	89	82	603	69		67	109	119
90........	76	94	82	81	84	80	577	54		54	116	130

* Index numbers not included in the general average.

Average Prices of Commodities—Contd.

No. of Article	18	19A*	19B*	19	16—19	1—19	20	21	22	—	23
	Coffee.	Tea.			Sugar, Coffee, and Tea.		Iron.		Copper.		Tin.
Year.	Mean of 18A and 18B.	Congou, Common.	Average Import Price.	Mean of 19A and 19B.		Food. Total.	Scotch Pig.	Bars, Common.	Chili Bars.	English Tough Cake.	Straits.
		d. per lb.	*d.* and dec. per lb.		Total.		*s.* and *d.* per ton	£ per ton	£ per ton	£ per ton	£ per to
1876	Prices, see preceding page 18A and 18B.	9½	16·42	—	—	—	58 6	7¼	76	82	74
'77		7¾	15·98	—	—	—	54·4	6¾	68	75	68
1878		7¾	15·29	—	—	—	48·5	5⅝	62	67	61
'79		9	14·68	—	—	—	47	5¾	58	64	73
'80		8¾	13·47	—	—	—	54·6	6¾	63	68	88
'81		6½	12·82	—	—	—	49·1	5¾	62	67	93
'82		5	12·58	—	—	—	49·4	6¼	66	71	102
1883		5¾	12·46	—	—	—	46·9	5¾	63	67	93
'84		6¼	11·78	—	—	—	42·1	5⅛	54	59	81
'85		6½	12·06	—	—	—	41·10	4⅞	43	47	87
'86		6½	11·77	—	—	—	39·11	4⅝	40	44	98
'87		5	10·58	—	—	—	42·3	4⅝	44	47	112
1888		4	10·99	—	—	—	39·11	4⅞	81	78	117
'89		4¼	10·79	—	—	—	47·9	6¼	51	54	93
'90		4½	10·68	—	—	—	49·7	6⅜	54	59	94
Average 1881–90		5⅜	11¾	—	—	—	45	5½	56	59	97
'78–87		6¾	12¾	—	—	—	46	5½	55	60	89
'67–77		11¼	17¼	—	—	—	69	8¼	75	81	105
	Index Numbers (or Percentages) of Prices, the Average of 1867-77 being 100.										
1876	118	84*	96*	90	393	1,889	85	88	101	—	70
'77	118	69	93	81	410	1,917	79	82	91	—	65
1878	106	69	89	79	361	1,825	70	68	83	—	58
'79	97	80	85	82	349	1,699	69	70	77	—	69
'80	97	78	78	78	353	1,773	79	82	84	—	84
'81	84	58	75	66	335	1,714	71	70	83	—	89
'82	68	45	73	59	303	1,699	71	76	88	—	97
1883	77	49	72	60	307	1,683	69	70	84	—	89
'84	73	56	68	62	253	1,501	61	62	72	—	77
'85	65	58	70	64	250	1.414	60	59	57	—	83
'86	75	58	69	64	239	1,370	58	56	53	—	93
'87	113	44	62	53	269	1,336	61	56	59	—	107
1888	96	36	64	50	259	1,370	58	59	108	—	111
'89	114	38	63	50	300	1,421	69	76	68	—	89
'90	123	40	62	51	282	1,382	72	77	72	—	90

* Index numbers not included in the general average.

Average Prices of Commodities—Contd.

No. of Article	24	25	26	20—26	27	28	29A	29B	30A	30B	31
	Lead.	Coals.			Cotton.		Flax.		Hemp.		Jute.
Year.	English Pig.	Wallsend Hetton in London.	Average Export Price.	Minerals. Total.	Middling Uplands.	Fair Dhollerah	St. Petersburg 12 Head Best.	Russian. Average Import.	Manilla Fair Roping.	St. Petersburg Clean.	Good Medium.
	£ per ton	*s.* per ton	*s.* and dec. per ton		*d.* per lb.	*d.* per lb.	£ per ton	£ per ton	£ per ton	£ per ton	£ per ton
76	21¾	21	10·93	—	6¼	4½	47	47	30	37	16½
77	20½	20	10·17	—	$6\frac{5}{16}$	$5\frac{3}{16}$	45	43	28	35	17½
78	16⅝	18	9·46	—	6⅛	$4\frac{15}{16}$	39½	40	25	29	17
79	15⅛	18	8·77	—	$6\frac{5}{16}$	5	34	35	27	25	16½
80	16½	15½	8·95	—	$6\frac{15}{16}$	5¼	35	40	30	23	18¾
81	15⅛	17	8·97	—	$6\frac{7}{16}$	4⅜	32½	33	43	24	18½
82	14½	17	9·14	—	6⅝	$4\frac{5}{16}$	29½	30½	46	24	15
83	12⅞	18	9·35	—	5¾	3⅞	30	30½	46	26	14¼
84	11¼	16½	9·29	—	6	$3\frac{15}{16}$	29½	30¾	38	29	13½
85	11⅝	16½	8·95	—	5⅝	4¼	34	35	35	29	12
86	13¼	16	8·45	—	5⅛	$3\frac{9}{16}$	35	35	29	29	11½
87	12⅞	16	8·32	—	5½	$3\frac{9}{16}$	32	31½	34	29	12¼
88	13⅞	16½	8·41	—	$5\frac{9}{16}$	3⅞	29	28	37	26	13¼
89	13	17½	10·21	—	$5\frac{15}{16}$	4⅛	28	28	50	26	15
90	13¼	19	12·63	—	6	$3\frac{15}{16}$	27	26	39	26	13¼
Average											
'81–90	13	17	9⅜	—	5⅞	4	30½	31	40	27	14
'78–87	14	16¾	9	—	6	4¼	33	34	35½	26½	15
'67–77	20½	22	12½	—	9	6¾	46	47½	43	35	19

Index Numbers (or Percentages) of Prices, the Average of 1867-77 being 100.

Year	24	25	26	20—26	27	28	29A–29B	30A–30B	31
76	107	95	87	633	69	67	100	86	87
77	100	91	81	589	70	77	94	81	92
78	81	82	76	518	66	73	84	69	90
79	74	82	70	511	70	74	73	67	87
80	80	70	72	551	77	78	79	68	99
81	74	77	72	536	71	65	70	86	98
82	71	77	73	553	74	64	64	90	79
'83	63	82	75	532	64	58	65	92	75
84	55	75	74	476	67	59	64	86	71
85	57	75	72	463	62	63	73	82	63
86	65	73	68	466	57	53	75	74	61
87	63	73	67	486	62	53	68	81	64
'88	68	75	67	546	62	58	61	81	70
'89	63	80	82	527	66	61	60	97	79
'90	65	86	101	563	67	58	56	82	70

Average Prices of Commodities—Contd.

No. of Article	32A	32B	33	34	27—34	35A	35B	36	37A	37B	38
	Wool.			Silk.		Hides.		Leather.	Tallow.		Oil.
Year.	Merino, Port Phillip, Average Fleece.	Merino, Adelaide, Average Grease.	English, Lincoln Half Hugs.	Tsatlee.	Textiles. Total.	River Plate, Dry.	River Plate Salted.	Crop Hides, 30–45 lbs	St. Petersburg, Y.C.	Town.	Palm.
	d. per lb.	*d.* per lb	*d.* per lb.	*s.* per lb.		*d.* per lb.	*l.* per lb.	*d.* per lb.	s per cwt.	*s.* per cwt.	£ per to
1876.......	20¼	9⅛	17⅜	21	—	7½	7	16¾	47	44	38
'77........	20¼	9⅛	16¼	20	—	8½	7¾	16	43	42	40
1878........	20	9⅛	15	16½	—	8½	6¾	14¾	38	38	38
'79........	18¾	8½	12½	16	—	8	6¾	11½	38	36	34
'80........	21½	10⅝	15⅛	15	—	9¼	7½	15½	41	36	32
'81........	19½	9¼	12⅜	15¾	—	9	7	15¼	42	38	32
'82........	19¾	9	11¼	15¾	—	9	7	15	52	44	35
1883.......	19	8½	10	15¾	—	9	7	15	50	43	41
'84	18¼	8⅛	10	14½	—	9	7	15	47	37½	36
'85........	16½	6¾	9⅞	12¾	—	8¾	6½	15	38	30½	30
'86..	15½	6⅝	10	13¾	—	8	5¾	15	31	26	24
'87.......	15¾	7	10⅝	14½	—	7¾	6¼	15	31	24	22
1888........	15¾	7	10⅜	13	—	6¾	4⅞	14	36	28	22
'89........	17½	8¼	11	13½	—	6¼	5	13½	38	27	25
'90.......	16	7½	11	14	—	5¾	5½	13	38	26	27
Average 1881-90	17½	7¾	10¾	14¼	—	7⅞	6⅛	14½	40	32½	29¼
'78-87	18½	8⅜	11¾	15	—	8⅝	6¾	15	41	35½	32½
'67-77	21¼	9⅞	19¾	23	—	9	7	16	45	45	39

Index Numbers (or Percentages) of Prices, the Average of 1867-77 being 100.

Year.	32A–32B	33	34	27—34	35A–35B	36	37A–37B	38
1876........	94	88	91	682	93	105	101	97
'77........	94	82	87	677	101	100	94	103
1878........	93	76	72	623	94	92	84	97
'79.......	88	63	69	591	92	91	82	87
'80........	103	77	65	646	105	97	86	82
'81........	92	63	68	613	100	95	89	82
'82........	92	57	68	588	100	94	107	90
1883.......	89	51	68	562	100	94	103	105
'84.......	85	51	63	546	100	94	94	92
'85	73	50	55	521	95	94	76	77
'86.......	70	51	60	501	85	94	63	61
'87........	72	54	63	517	88	94	61	56
1888........	72	53	57	514	73	87	71	56
'89	82	56	59	560	70	84	72	64
'90.......	76	56	61	526	70	81	71	69

Average Prices of Commodities—Contd.

No. of Article	39	40A	40B	41	42	43	44	45A	45B	35—45	20—45	1—45
	Oil.		Seeds.	Petroleum.*	Soda.	Nitrate of Soda.	Indigo.	Timber.		Sundry Materials. Total.	Materials. Total.	Grand Total.
Year.	Olive.	Linseed.	Linseed.	Refined.	Crystals.		Bengal, Good Consuming.	Hewn, Average Import.	Sawn or Split, Average Import.			
	£ per tun	£ per ton	*s.* per qr.	*d.* per gall.	*s.* per ton	*s.* per cwt.	*s.* per lb.	*s.* per load	*s.* per load			
76	46	24	51	14½	80	11½	6½	58	56	—	—	—
77	49	28	54	12	72	14	5½	56	58	—	—	—
78	49	26	49	9⅛	70	15	5½	49	50	—	—	—
79	46	27	52	7⅜	68	15	6¼	42	43	—	—	—
80	41	27	54	7½	74	15½	7¼	49	52	—	—	—
81	38	26	50	7¼	65	14½	6¾	51	50	—	—	—
82	37	23	44	6	63	13¼	6½	52	52	—	—	—
83	36	20	42	6½	66	11¼	6¼	52	48	—	—	—
84	40	20	43	6⅓	65	9½	6	48	46	—	—	—
85	39	22	44	6⅞	55	10½	5¼	48	45	—	—	—
86	38	20½	42	5⅞	49	10	5	43	43	—	—	—
87	34	20½	38	5⅝	50	9½	4¾	38	42	—	—	—
88	36	18½	39	6½	48	10	4¾	41	44	—	—	—
89	35	20	42	5¾	51	9½	4½	47	49	—	—	—
90	41	23	43	5½	61	8½	4¼	44	46	—	—	—
erage												
81-90	37½	21½	43	6¼	57	10¾	5⅜	46	46	—	—	—
78-87	40	23	46	6⅞	62	12½	6	47	47	—	—	—
67-77	50	30	60	12½*	92	14	7¼	60	54	—	—	—

Index Numbers (or Percentages) of Prices, the Average of 1867-77 being 100.

	39	40A–40B	41	42	43	44	45A–45B	35—45	20—45	1—45
76	92	82	116*	87	82	91	100	1,046	2,361	4,250
77	98	92	96	78	100	75	100	1,037	2,303	4,220
78	98	85	73	76	107	76	87	969	2,110	3,935
79	92	89	59	74	107	86	75	934	2,036	3,735
80	82	90	60	80	111	100	89	982	2,179	3,952
81	76	85	58	71	104	93	89	942	2,091	3,805
82	74	75	48	69	95	90	91	933	2,074	3,773
83	72	68	52	72	80	86	88	920	2,014	3,697
84	80	69	52	71	68	83	82	885	1,907	3,408
85	78	73	55	60	75	72	81	836	1,820	3,234
86	76	69	47	53	71	69	76	764	1,731	3,101
87	68	65	45	54	68	66	70	735	1,738	3,074
88	72	63	52	52	71	66	74	737	1,797	3,167
89	70	69	46	55	68	62	84	744	1,831	3,252
90	82	73	45	66	61	59	79	756	1,845	3,227

* Petroleum as compared with the average from 1873-77 only.

III.—*The Wages of the Working Classes and the National Income in France.* By Ad. Coste. (Translated from the *Journal de la Société de Statistique de Paris*, August, 1890.)

The claims of the workman urged of late with so much persistency not only by popular agitators, but also by those in high places, and received with so much complacency by that class of the community which does not appear to be troubled by any fears of economic perturbation, but fancies itself to be perfectly disinterested and unprejudiced, and which looks on at the social drama with a sort of sympathetic curiosity—these claims, be it observed, invest with an importance which they certainly would not otherwise command, any accurate and reliable data relating to the distribution of the national income.

It is to be regretted that these data are still so incomplete, for there are no absolutely precise details relating either to the amount of the total income, or the proportions by which it should be divided among the various categories of workers, but notwithstanding this difficulty it will be our object in the present review to elucidate as far as possible the two following points: what is the extent of the national income, and who are the participators in it?

As regards the first point, until the Statistical Society of Paris undertakes a fresh valuation—a work which is urgently needed, we are of opinion that M. de Foville's estimate which he gave us in his *France Economique*, viz., from 20,000 to 25,000 millions of francs (from 800 to 1,000 millions sterling), may safely be taken to represent the amount of national income. This would perhaps be more nearly expressed by the figures 22,500 millions (900 millions sterling), with a possible margin of about 10 per cent. more or less, and in the following observations it will be our endeavour to show how very near the mark this estimate appears to be.

In M. Tisserand's work, the *Introduction à l'Enquête Agricole de* 1882, we possess a very valuable instrument with which to establish a basis in the valuation of the national income. This is the value of the agricultural production, of which the following is a summary:—

Gross Product of the Cultivation of the Soil.

[In millions of £'s.]

Vegetable products—	Mln. £
Cereals, grain	163
„ straw	51
Potatoes	25
Food grains other than cereals	5
Forage and pasture	96
Industrial plants	14
Vines	45
Market gardens, &c.	36
Olive and walnut trees, &c.	7
Woods and forests	13
Total	455

Gross Product of the Cultivation of the Soil—Contd.

	Mln. £
Animal products—	
Horses, mules, asses (animals sold)	3
Animals for food	65
Milk	46
Wool	3
Poultry, game, &c.	7
Eggs	5
Silk cocoons	2
Honey and wax	1
Labour of draught animals	121
Manure	32
Total	285
Grand total	740
From which should be deducted—	
(1.) Seed	21
(2.) Manure	33
(3.) Straw, forage, and grain consumed as food for animals	154
	208
Leaving, according to M. Tisserand, as real actual gross product in 1882	532
From which should be deducted the value of the labour of draught animals employed in agricultural operations, which is represented by	121
Leaving a total of	411

This figure of 411 millions includes agricultural wages, rent of land, general expenses and profits of the cultivators.

All these items go to make up the income of the agricultural population. An attempt however should be made to distinguish among these items the proportion due to the various persons who are not really agriculturists, and who belong to another group of the population—persons occupying the positions of farriers, harness makers, wheelwrights, veterinary surgeons, &c.—for the sake of argument we will put the total amount due to these at 444 millions of francs (18 millions sterling), thus leaving the total of the agricultural incomes at 393 millions sterling for the year 1882.

This gross product supports a population that the professional census enumeration of 1886 showed to consist of 17,698,402 persons of both sexes and of all ages; and in a nation so homogeneous as the French, where equality in the conditions is more generally found than in other nations, together with the facilities of communication and of displacement which allow of the agricultural labourers easily repairing to the urban districts, and of devoting themselves to industrial pursuits when the latter appear to offer greater advantages and to be more remunerative, we may take it that the gross product in the various groups of national activity ought to be in strict proportion to the importance of the population of each group. We should thus have the following relative figures:—

	Importance of the Population.	Product.
		Mln £'s
Agricultural population	17,698,402	400
Non-agricultural ,, ...	19,272,279	435
	36,970,681	835

But this can be but a rough approximation at best, and we are at once met with an objection which it is somewhat difficult to remove. The productive power in the towns is somewhat greater than it is in the rural districts, either by reason of the fact that capital is more plentiful, or the use of more powerful machinery, or by reason of the greater skill and activity displayed there. In any case the production per head of workmen is of greater value in the towns than in the country districts, and, indeed, wages and incomes are higher there, not only nominally, but effectively; the workmen, while perhaps practising less economy, consume more and obtain more material satisfaction. We will leave on one side for the moment the question of moral considerations.

It is necessary therefore to establish different coefficients of productive power for the rural and urban populations, and with a view to determine them it would appear that one might reasonably depend upon the average rates of daily wages, and the three following coefficients may be suggested:—

	Average Wages.			Coefficient of Productive Power.
	Men.	Women.	Married Couples	
	s. *d.*	*s.* *d.*	*s.* *d.*	
Country districts	2 1	1 4	3 5	1·00
Chief provincial towns	2 10	1 5	4 3	1·24
Paris	4 6	2 2	6 8	1·96

It now remains to apply these coefficients to the different groups of population, which the census returns enable us to do, since they distinguish the urban from the rural population. As regards the latter, it is composed of all the communes of which the aggregate population is under 2,000. We will apply the coefficient 1 to this rural population, in which we propose to include the whole of the agricultural classes and a certain number of artisans, persons engaged in business, and others whose wages and profits are about on a par with those of the peasants among whom they live. We will apply the coefficient 1·24 to the whole of the urban population, except the Parisian population, which will benefit by the highest coefficient, viz., 1·96, and this gives us the following results:—

Theoretical Calculation of the Production.

Groups of Population.	Strength of the Population in Round Numbers.	Coefficient of Productive Power.	Production in Millions of £'s.
Agricultural population	17,700,000	1·00	400
Industrial and commercial population—			
Rural	6,000,000	1·00	136
Urban (departmental)	11,000,000	1·24	308
Parisian	2,300,000	1·96	100
Total	37,000,000	—	944

We thus arrive, for the annual production or income of France, at an estimate of 944 millions sterling, which nearly approximates to M. Foville's estimate; and this figure may perhaps be taken exception to on the score of its being a little too high, seeing that we have taken as a basis the agricultural production of 1882, which was an exceptionally good year from an agricultural point of view. If we reduce this figure by one-twentieth only, the above estimate will only show a total production of about 22,500 millions of francs (900 millions sterling).

However that may be, we may safely accept this solution of the first part of our problem; and we possess, having regard to the degree of accuracy of the data that form the basis of our calculations, a fairly approximate estimate of the national income.

Coming next to the question of the participators in this income, we will take first the wage earning classes; and on this point we find some valuable information in the census returns of 1886, which have been carefully summarised by MM. Vannacque and Turquan.

According to the classification of the population by professions and by social condition, it appears that there are 8,109,103 masters or heads of industrial establishments, 964,032 clerks or travellers, 6,774,590 workmen, day labourers, &c., and 1,950,208 domestic servants, making in all a total of 17,797,933 persons. In analysing these figures it would appear to be necessary to modify them in the following particulars.

The agricultural inquiry of 1882 shows that there were 3,434,938 farm servants and agricultural day labourers, as compared with 2,771,966 agricultural labourers shown by the census enumeration of 1886. This is a difference of 662,972 individuals, which cannot be accounted for by any natural diminution that might have taken place during the period comprised between 1882 and 1886 in the numbers of the labourers; we are aware on the other hand that during these years, which were characterised by a succession of crises, there was a certain reflux of workmen, who unable to find occupation in the towns, returned to the rural districts. The explanation of the difference may be found in the fact that 727,374 agricultural day labourers are at the same time proprietors of small holdings. The majority of these returned themselves as landowners at the time of the census enumeration, while in the agricultural inquiry they were entered as agricultural labourers.

On the other hand, it would appear to be well to eliminate from the group of workmen properly so called, the 67,761 office messengers and persons of that class who are included in the census returns with those belonging to the public administration and liberal professions, as well as the 100,283 *concierges* and paid servants who are included in the same returns with owners of property, independent persons, and pensioners.

The following is the result of these modifications, shown in a tabular statement a little more in detail than the one given above :—

Return showing the Number of Landlords, Masters, Employers, and Private Individuals Living on their Incomes, and Numbers of Clerks, Workmen, Servants, &c.

	Number.	
Employers—		
Farmers	3,383,192	7,446,131
Manufacturers, merchants, &c.	2,009,914	
Landowners, independent persons, persons engaged in public administration and liberal professions, public forces, &c.	2,053,025	
Employés and salaried classes—		
Employés and clerks of all kinds	964,032	1,132,076
Office messengers and persons in a similar position	67,761	
Concierges, &c.	100,283	
Workmen and day labourers—		
Agriculture	3,434,938	7,269,518
Industry	3,056,161	
Commerce and transport	778,419	
Domestic servants		1.950,208
Total		17,797,933

In leaving on one side for the moment the first group, that comprising the employers and independent persons, we find that the other workers may easily be split up into seven unequal groups, upon two of which, agricultural labourers and industrial workmen, we are in possession of information more or less precise in the results of the agricultural inquiry in 1882, in the *Statistique Annuelle des Mines* and in the *Statistique Annuelle de la France*. For all the other catalogues of workers, it is only by assimilation or by individual estimate that we are able to fix the amount of salaries, wages, and emoluments, and there are consequently, we are bound to admit, great possibilities of error. In this connection it is necessary to call attention to the fact that the two census enumerations of Paris and of France enable us to subdivide each of the various groups of workers into four categories—working men and working women in Paris; working men and women in the departments. We are thus enabled to multiply the categories of workers to whom we can apply information of a distinct and definite character, and as the greatest differences that are observable between the salaries and wages, are those which exist between the wages of men and women, between the wages paid in Paris and those paid in the provinces, much more than between the wages and the salaries paid in various trades and professions, we may, we think, claim to arrive by this analytical method of procedure, at a very fair approximation.

The following statement shows in tabular form these different categories of working men and women, together with the average annual remuneration, taken as typical of each class :—

		Paris.		Departments.	
		Persons.	Wages.	Persons.	Wages.
		No.	£	No.	£
Agricultural labourers	Males........	2,646	—	1,960.266	23
	Females....	282	—	1,471,744	
Industrial labourers—					
Mining industries	Males........	969	—	192,511	39
	Females....	45	—	27,037	
Metallurgy	Males	3,823	66	88,838	41
	Females....	190		11,867	
Other industries................	Males........	262,266	68	1,434,612	41
	Females....	232,203	35	801,800	21
Labourers engaged in trade and transport	Males	94,133	68	407,958	41
	Females....	66,949	33	209,379	21
Clerks and employés	Males	168,988	60	541,680	36
	Females....	59,162	40	194,202	24
Office messengers, &c.	Males........	6,021	48	45,527	29
	Females....	2,055	32	14,158	19
Concierges	Males........	11,018	29	31,471	14
	Females....	22,985	19	34,809	9
Servants	Males	30,652	60	652,490	36
	Females....	101,778	40	1,165,288	24
Males..................................		580,516	—	5,355,353	—
Females................................		485,649	—	3,930,284	—
		1,066,165	—	9,285,637	—
		10,351,802			

We propose next to show upon what basis the wages have been estimated. In so far as regards the wages of the agricultural classes, we have followed the lines laid down in the agricultural inquiry of 1882, only adding to the wages of the farm servants the money value of their board and lodging, which represents 16*l.* for the men and 11*l.* for women. We then arrive at the following results :—

	Number.	Annual Wages.	Total Amount of Wages Paid.
		£ £	£
Farm bailiffs (*maître valets*)...	130,022	19 + 16	4,550,770
Waggoners	541,050	13 + 16	15,590,450
Shepherds	197,043	12 + 16	5,517,204
Dairy hands	8,086	17 + 16	266,638
Other farm hands	292,238	12 + 16	8,182,664
Farm servants	253,786	6 + 12	4,567,548
Day labourers............................	540,687	27	14,598,549
Total males....................	1,962,912	....	53,273,823
Female farm servants	532,026	9 + 11	10,640,520
„ day labourers	940,000	16	15,040,000
Total females	1,472,026	....	25,680,520
Gross total	3,434,938	....	78,954,343

The result of the agricultural inquiry of 1882 only shows a total of 1,480,687 day labourers, without distinguishing the males from the females. To effect this distinction advantage has been taken of the census figures of 1886, which show that of the persons engaged in agricultural labour, 1,613,697 were males, and 1,158,269 females, a proportion of about four-sevenths men, and three-sevenths women. The latter proportion applied to the 3,434,938 agricultural labourers as shown by the inquiry commission gives 1,472,000 women, among whom we have found already that there are 532,000 domestics, thus leaving 940,000 females who must therefore be considered as day labourers. In estimating the amount of wages paid to day labourers, the total number of days during which they work has been taken as 250, 125 days in summer at 2*s.* 6*d.* and 1*s.* 6*d.* without board, and 125 in winter at 1*s.* 9*d.* and 1*s.* 2*d.*

Coming next to the mineral industry, it must be understood that this comprises the mining industry (combustibles, iron, and other ores, salt works and quarries), and the metallurgical industry (iron, steel, and other metals). The reports on mines supply us annually with data relating to the production, and the amount paid in wages of the majority of the more important mines. It also gives us the metal production, but not the amount paid in wages to persons engaged in this industry.

In 1886 the working of the 456 mines and the 5,063 salt mines and pits gave employment to 121,196 persons, who received in wages a total sum of 118,170,098 frs. (4,723,000*l.*), an average of 975 frs. (39*l.*) a head without distinction of age or sex. It should however be observed that this average is made up of factors widely differing in themselves: for instance, we have taken the average wages of 102,354 coal miners at 42*l.*, of 10,308 workers in other than coal mines at 33*l.*, and of the 8,534 persons engaged in salt mines and pits at 11*l.* The smallness of the latter figures may be accounted for by the fact that the work in salt mines and pits is very irregular, and carries with it a certain number of advantages, the money value of which has not been estimated. We have therefore confined ourselves to applying the average of 39*l.* to the mining industry *en bloc;* but as regards the metallurgical industry, on the subject of which the official mining statistics are silent as to wages, and taking into consideration the fact of its being an important industry, affording constant and regular work, we have taken the average wages of the coal workers, and in the case of those workmen engaged in the metallurgical industry in Paris, increased these by 60 per cent., bringing the amount up to about 66*l.*

This estimate, it may be observed, is rather low than otherwise, for the average wages of coal miners are less than those paid to workmen engaged in other industries in the French provinces, the reason being that the former enjoy many other advantages, such as assistance from colliery proprietors in money or in kind, medical attendance, free grants of coal, or supplies at a reduced price, cheap lodgings, &c. At first we endeavoured to establish a particular average of wages paid in each group of industries—textiles, mining, metallurgical, &c.—but on looking more closely into the matter we observed that the same results would be obtained by applying to the whole of the industrial operatives the following general averages which are supplied by the official *Statistique Annuelle de la France:*—

Paris or Department of the Seine.

	£	Average. £
Men—		
Minor industries (forty-nine) ordinary daily wage of a workman without board, 4*s.* 8*d.*, multiplied by 300 working days	70	68
Principal industries (twenty-three), ordinary daily wage of a workman over 21 years of age, 4*s.* 4*d.*, multiplied by 306 days	66	
Women—		
Minor industries (ten), wages of female operatives, 2*s.* 4*d.*, multiplied by 300	35	33
Principal industries (twenty-two), 2*s.* 1*d.*, multiplied by 306	32	

Chief Provincial Towns.

Men—		
Minor industries (fifty-one), average wages 2*s.* 9*d.*, multiplied by 300	41	41
Principal industries (thirty), average wages of men over 21 years of age, 2*s.* 10*d.*, multiplied by 293	41	
Women—		
Minor industries (eleven), average wages 1*s.* 5*d.*, multiplied by 300	21	20
Principal industries (thirty), average wages 1*s.* 4*d.*, multiplied by 300	20	

These figures relate to the year 1886, which was the census year, and which, as may be seen by reference to the subjoined comparative statement, was a year characterised by a rather low rate of wages, particularly in the principal industries.

Years.	Principal Industries.								Coal Mines.	Minor Industries.							
	Daily Wages.									Daily Wages.							
	Paris.				Departments.				Annual Average Wages.	Paris.				Departments.			
	Men.		Women.		Men.		Women.			Men.		Women.		Men.		Women.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	£	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
1881	4	2½	2	1½	2	10	1	5	—	4	6	2	4¼	2	8¼	1	5
'82	4	2½	2	1½	2	9¾	1	5	44	4	9	2	4½	2	8¾	1	5
'83	4	3	2	1½	2	10	1	5¼	45	4	8	2	4	2	9½	1	5
'84	4	3	2	–¾	2	10¼	1	5¼	43	4	8	2	4	2	9	1	5½
'85	4	4	2	1½	2	10¼	1	5	42	4	8	2	4	2	9	1	5½
'86	4	–	2	1	2	10	1	5¼	42	4	8	2	4	2	9¼	1	5½
'87	4	–¼	2	1½	2	10	1	5¼	43	4	8	2	4	2	9¼	1	5½

In order to arrive at the annual wages of industrial workmen, the mean of the two general rates of the minor and principal industries has simply been taken, as the data at disposal are not sufficiently accurate to enable us to make a more precise calculation. Moreover, there can be no doubt that the minor industries, from the point of view of the importance of their labour, are quite on a par with the principal industries. The census enumeration of 1881 even attributed to the former twice as many workpeople as were engaged in the latter, and as the wages paid in the minor trades are generally higher than those in the principal industries, a simple arithmetical mean of these two groups ought to give a result rather under than above the mark. There is therefore a deficiency, which in some measure compensates for the inferiority of the wages of labourers belonging to the agricultural population, and which it has not been possible otherwise to take into consideration.

As regards the wages paid to persons engaged in the interchange and transport of goods, the same averages have been applied as to the workpeople employed in the major and minor industries, while, as regards commercial employés, clerks, and office messengers, the *Statistique Annuelle de Commerce* furnishes us with the following estimates of the annual wages:—

	Paris.	Other Towns.
	£	£
Clerks in offices and warehouses	48	37
Dames de comptoirs	32	25
Shop girls	19	19

There is no information in the publication from which we have extracted these particulars as to whether these are exclusive or inclusive of board and lodging. In any case, as it would appear that these figures, which only apply to commercial employés, are rather under estimated, it would, we think, be nearer the mark to substitute for them the following:—

	Paris.	Departments.
	£	£
Employés	60	36
Employées	40	24

For office messengers and persons in similar positions these rates have been reduced by a fifth. For servants and *concierges* there is, unfortunately, an equal absence of reliable information, but the following estimate might be safely adopted, board and lodging being in each case taken into consideration:—

	Paris.		Departments.	
	Males.	Females.	Males.	Females.
Servants—	£	£	£	£
Wages	24	14	12	9
Lodging	5	5	—	—
Board	29	18	22	14
Washing, &c.	2	2	2	1
	60	40	36	24
Concierges—				
Wages and lodging	29	19	14	10

The following statement will now show the results of the application of these different types of wages to the various categories of workers which we have enumerated above:—

		Paris.	Departments.	Total.
		£	£	£
Agricultural wages		—	78,954,000	78,954,000
Industrial wages—				
Mining industry		—	8,600,000	115,676,000
Metallurgical industry		268,000	4,224,000	
Other industries	Males	17,940,000	59,796,000	
	Females	7,784,000	17,064,000	
Wages paid in trade and transport	Males	6,440,000	17,004,000	30,144,000
	Females	2,244,000	4,456,000	
Employés and clerks	Males	10,140,000	19,500,000	36,668,000
	Females	2,368,000	4,660,000	
Office messengers, &c.	Males	288,000	1,312,000	3,480,000
	Females	64,000	272,000	
Concierges, &c.	Males	316,000	452,000	
	Females	440,000	336,000	
Domestics	Males	2,640,000	23,488,000	58,168,000
	Females	4,072,000	27,968,000	
		55,004,000	268,086,000	323,090,000

The share, therefore, of the working classes in the national income of France, which is estimated at between 20,000 and 25,000 millions of francs (from 800 to 1,000 millions sterling), amounts, as we find from the above statement, to 323,090,000*l.*; but the question next arises: Does it follow that the difference should be attributed to landed proprietors and capitalists? To some extent this question may be answered in the affirmative, but in this connection there is an important distinction which it would be well to devote some attention to.

A considerable number of small landowners cultivating their own land, many manufacturers in a small way of business, and artisans, small traders, and persons living upon slender annuities, are in a condition very similar to that of the ordinary wage-earners, and are even in a more precarious condition, seeing that, although not ordinarily earning more than the latter, they sometimes run greater risks, and at times are subjected to very considerable modifications of their modest incomes. It is necessary, therefore, to endeavour to establish as far as possible the proportion of these persons who it may be said are on the border land of capital and labour, and who depend for their subsistence rather upon labour than upon capital. This proportion being approximately determined, we shall have distinguished the group of landed proprietors, manufacturers, business men, and capitalists who are in easy circumstances, and in a position to bear, to a certain extent, any fluctuations in their incomes.

In the table of independent persons and employers of labour and workmen given at the commencement of this review, we divided the group of masters or employers, or capitalists who may be classed as masters or employers, into three groups as follows:—

	Numbers.
(1.) Agriculture	3,383,192
(2.) Industry, trade, and transport	2,009,914
(3.) Independent persons, public forces, public administrations, and liberal professions	2,053,025
Total	7,446,131

As regards the first group, the agricultural inquiry of 1882 places us in possession of information respecting the division of landed property, and furnishes us to some extent with the bases of the distribution of agricultural fortunes. We find from this publication that of the 5,672,007 properties which are therein enumerated, 2,167,667 are under 1 hectare (2·47 acres) in extent, and 1,865,878 vary between 1 and 6 hectares. This proportion of very small holdings, 4,033,545 out of 5,672,007, or 71 per cent., is however somewhat exaggerated. Account must be taken of the duplications of those holdings which overlap the borders of two or even of several communes, of lands detached but not separately cultivated, and finally of the small plots belonging to day labourers and small farmers. These corrections being made, we revert to the figure of 3,383,000 as representing the number of farmers properly so called, and we should not be justified in estimating at less than half this number, that is at 1,700,000 persons (a figure certainly rather below than above the mark), those agriculturists whose position in life is not much better than that of the ordinary labourer.

In estimating their average income at 40*l.*, we arrive at a total of 68 millions sterling as representing the collective incomes of this group of the population.

In the second group, namely, that comprising those persons engaged in trade, industry, and transport, nearly all of whom are liable to taxation, we can rely upon the taxation returns of 1885, of which a summary was published in the October (1889) number of the *Bulletin du Ministère des Finances.* At this period, of 1,658,882 establishments subject to taxation of which the average rental was about 29*l.*, it is shown that 501,226 had only an average rental of 16*l.*, 226,722 of 11*l.*, and 77,458 of 5*l.*, making a total of 805,406 establishments which must necessarily have been engaged in a small way of business. From this we may infer that about half these persons engaged in trade and transport, about one million persons, are in a condition very much akin to that of ordinary labourers, and in attributing to them incomes approaching the average wages of male labourers, we arrive at the following results:—

	£
90,000 small masters in Paris at 72*l.*	6,480,000
910,000 ,, in the departments at 44*l.*	40,000,000
Total	46,480,000

In the third group of so called independent persons or non wage-earning classes (property owners other than farmers, annuitants, persons belonging to the liberal professions, public administration, public forces), there is also a considerable number of individuals who live more upon the proceeds of their labour than upon that of their capital, or whose incomes, from whatever sources they may be derived, exceed but very slightly the amount of a modest salary. To be convinced of this fact it is only necessary to run through the various categories comprised in this third group:—

Persons belonging to the public forces, army and navy, gendarmerie, and police	484,898
Persons (of whom 14,005 are females) belonging to the public administration, functionaries, and agents paid by the State, by the department, and communes	189,187
Persons (of whom 63,985 are women) belonging to the religious professions. Members of the Catholic clergy (44,072), religious communities (83,071)	128,738
Persons belonging to the legal profession, barristers, solicitors, notaries, &c.	39,860
Persons (of whom 14,003 are women) belonging to the medical profession, doctors, surgeons, medical officers of health, chemists, herbalists, dentists, oculists, *pédicures*, and midwives	40,714
Persons (of whom 66,574 are women) engaged in tuition, professors, schoolmasters and mistresses	146,225
Persons belonging to the scientific, literary, and artistic professions, authors and publishers, architects and civil engineers, musicians, sculptors, painters and engravers, actors and public singers	44,659
Total (of whom 165,476 are women)	1,074,281

It is clear that we shall be well within the bounds of moderation in stating that more than four-fifths of this total is composed of persons whose resources are by no means greater than those of the ordinary artisan; such, for example, are soldiers and sailors, the lower grades of government clerks, the poorer clergy, certain classes of schoolmasters and schoolmistresses, &c.; and in adding to these the small *rentiers* and annuitants, pensioners, &c., we cannot estimate at less than one million persons those members of this third group who have nothing in common with the "independent person" but the name. The statistical returns which have so classified them do not show to their credit resources exceeding from 40 to 48 millions sterling, and this gives about 160 millions as representing the incomes of small landed proprietors, artisans, and of all those independent workers whose resources do not exceed the maximum wages of the *ouvrier*.

We thus arrive as a final result at the following distribution of the French incomes:—

WORKING CLASSES.

		Mln. £'s
3,434,938	agricultural labourers	80
3,834,580	industrial and commercial workmen	144
1,132,076	employés and other persons receiving wages	40
1,950,208	domestics	56
	Total of wages and salaries	320
3,700,000	small landowners, artisans, transport agents, soldiers, sailors, gendarmes, minor functionaries, minor clergy, schoolmasters and mistresses, the resources of whom do not exceed the maximum wages of the *ouvrier*	160
	CAPITALISTS PROPERLY SO CALLED.	
1,683,192	landowners	420
1,009,914	manufacturers, merchants, &c.	
1,053,025	*rentiers* and members of the liberal professions	
	Total	900

We must repeat that this table only contains approximations, and must be regarded rather in the light of an experiment, but at the same time it furnishes us with an absolute basis for economic arguments. Moreover, as may have been seen from the preceding observations, the estimate of the salaries, wages, and emoluments paid to the various classes of workers as well as the incomes of the so called independent persons has been made with great moderation. If we were enabled by the assistance of more precise determining factors to revise this estimate, if also we took into consideration the revenues arising from the property and domains of the State, communes, and public establishments, which exceed 12 millions sterling, it is evident that the share which we have placed to the credit of the capitalists properly so called would be reduced in proportion.

The total incomes arising from capital, whatever may be the investment in which it is placed—agriculture, industry, trade and transports, houses, public funds, &c., does not appear to us to be by any means over estimated when the fluctuations to which they are exposed are taken into account. This group of capitalists comprises farmers, large landed proprietors farming their own lands, and those who, not farming them themselves, are exposed to the risk of non payment of rent and of the deterioration of land; contractors, manufacturers, merchants, stock and bond holders, sleeping partners in industrial and other undertakings, &c.

In spite of these risks, the total of 420 millions sterling that we have allotted to the 3,746,000 capitalists, only represents an average of 112*l.* for each family after payment, it is true, of the service of the domestics, whose wages and keep are included in the total of wages, and also of that proportion of the taxation which is devoted to the maintenance of the public forces, of the administrations, and for religious and educational purposes, since all soldiers and public functionaries, priests and schoolmasters, appear among the non wage-earning classes, and diminish by so much the proportion of the capitalists in the collective income.

This average income, increased by the quota of domestics, soldiers, public functionaries, &c., would not amount to more than 140*l.*, and this average is in itself so low that one is led to believe that there exists a considerable number of small incomes half way between the incomes of the ordinary working men and clerks and those of the employers. In the whole of France, M. Leroy Beaulieu is of opinion that there are not more than 700 or 800 persons enjoying incomes amounting to more than 10,000*l.*, nor more than 18 to 20,000 incomes ranging between 2,000*l.* and 10,000*l.* However that may be, it has been conclusively shown by the preceding estimates, that judging by the average of French incomes, there would not be much justification for holding out any great hopes to the various classes of workers of an immediate improvement of their financial positions.

In this connection it might be well to devote some little space to the consideration of two subjects which have of recent times much engaged public attention. These are, first, the relegation of women to their household duties, and, secondly, the reduction in the hours of labour, or, which is the same thing, an increase in the wages of the workman. In so far as regards the first point it may be observed that—

	Mln. £'s
Of 3,435,000 agricultural labourers, there are 1,472,000 women, who receive in wages	27
,, 661,000 Parisian workpeople, there are 299,000 women, whose wages amount to	10
,, 3,174,000 workpeople in the various departments, there are 1,050,000 women, whose wages amount to	22
,, 1,132,000 employés, there are 327,000 women, with wages amounting to	8
,, 1,950,000 domestics, there are 1,267,000 women, with wages amounting to	32
Of 10,352,000 workers of all kinds there are 4,415,000 women, obtaining wages amounting in the aggregate to	99

This total amount of 99 millions sterling represents a proportion of 30 per cent. of the whole amount paid in wages and salaries; and again this represents an amount of work which could not be compensated for by even the increased labours of French workmen alone; it could only be met by the assistance of foreign immigrants, or by the employment of machinery and domestic animals—that is to say, by the application of larger capital.

In so far as regards the second point, namely, the reduction in the hours of labour or an increase in wages, popular agitators, encouraged in a certain measure by the socialism professed in high places, have put forward the famous formula of the "three eights" (eight hours' work, eight hours' leisure, eight hours' sleep), completed by one day's rest a week. They demand that six days' work, of eight hours each—or forty-eight actual working hours—shall in future be paid for at the same rate as seven days' work of eleven to twelve hours each, that is to say, seventy-seven or eighty-four hours of labour. It becomes therefore a question at least of an increase of 60 per cent. in wages. It is not our intention to examine into the justice of these claims, it will be sufficient only to endeavour to estimate the consequences of satisfying them.

Assuming for the sake of argument that it were granted only to workpeople and employés engaged in industry, trade, and transport, this rise in wages would represent an additional burden of more than 80 millions sterling, which would fall upon manufacturers, merchants, and forwarding agents, and they would have to submit to a reduction of from 30 to 40 per cent. in their gross profits. It may be urged, it is true, that this additional burden would not entirely fall upon manufacturers and merchants, because the producers would recoup themselves in raising by so much the cost price of their products, and thereby make the burden fall upon the consumers. This result is however most uncertain; but in any case if we admitted the possibility of this burden falling upon the consumers, we must assuredly admit the generalisation of the rise in all salaries, wages, and emoluments. The increased wages paid in industrial undertakings would undoubtedly bring in their train an increase in the wages paid in the agricultural industry as well as in the wages of domestic servants, and the emoluments of employés and minor public functionaries. It would then be no longer a question of 80 millions, but according to our calculations it would be a matter of 192 millions which would have to be deducted from the total of the incomes derived from capital; this deduction would amount to as much as 40 per cent.

This is tantamount to saying that the land, which now brings to its owner about 2·75 per cent., will no longer realise for him more than 1·65. Capital sunk in house property in the towns, and in farms in the country, which now realises from 4 to 5 per cent., would no longer yield more than 2½ to 3 per cent., while joint stock companies would find their dividends entirely absorbed by this general increase in the price of labour. We do not speak of the necessary increase in taxation which must take place, nor of the fall in the funds which would also inevitably follow.

For these reasons alone it will be evident that if such a measure were carried, it would be equivalent to the issue of an absolute prohibition against the practice of economy and the initiation of new enterprises and undertakings; that it would cause a terrible depreciation of capital employed, and that it would undoubtedly cause fresh capital to flow out of the country. We think, therefore, that enough has been said to show what insurmountable obstacles appear to be in the way of a satisfaction of the workmen's grievances. At the same time we are not disposed to shut out all hopes that the future may bring forth an amelioration of their position.

Undoubtedly it is only reasonable to hope that wages should be increased, and that the hours of labour should be diminished, if only with a view to the improvement of the intellectual and moral culture of the working man; undoubtedly it is most desirable that the woman should resume her old household and maternal duties, but we may rest assured that these social improvements will only be effected little by little, in proportion as our savings become sufficiently plentiful to create fresh capital, which will constitute more powerful sources of production; in proportion as the fears of war and the precautions of an armed peace diminish and allow of the suppression of unproductive expenditure; in proportion as the antagonism between the master and the workman becomes less bitter, and occasions fewer interruptions in work itself, fewer strikes, and less waste of strength and capital; finally, in proportion as the development of exchanges enables us to profit to a much greater extent by the production of foreign countries, while at the same time devoting ourself to the improvement and perfection of our own national products.

It is therefore by the security afforded and the encouragement given to practise habits of economy, by the extension of credit, by the increased employment of machinery, and by the development of commercial liberty, that we shall succeed in bringing about in the future that which is now so vehemently desired, in the same way as we have succeeded in the past in effecting those improvements from which we are now benefiting. On the other hand, by frightening away capital, by railing against the use of machinery, by demanding in every possible form the protection of native industry, and acting generally in such a manner as to restrict production, the socialists of the upper classes and the socialists of the lower classes are turning their backs upon economic progress, and are grievously injuring the cause they are professing to serve.

IV.—*Fires in London during the Year* 1890, *and the Metropolitan Fire Brigade.*

The following particulars are taken from Captain Shaw's Report to the Fire Brigade Committee of the London County Council, in continuation of similar notices for previous years:—

"The number of calls for fires, or supposed fires, received during the year has been 3,546. Of these 768 were false alarms, 223 proved to be only chimney alarms, and 2,555 were calls for fires, of which 153 resulted in serious damage, and 2,402 in slight damage.

"These figures only refer to regular calls for fires, or supposed fires, involving the turning out of firemen, fire engines, fire escapes, horses, coachmen, and pilots; they do not include trifling damages by fires which were not sufficiently important to require the attendance of firemen; neither do they include the ordinary calls for chimneys on fire, which are separately accounted for further on.

"The fires of 1890, compared with those of 1889, show an increase of 217; or compared with the average of the past ten years, an increase of 422.

"The following table gives the result both in actual numbers and percentages:—

Year.	Number of Fires.			Percentages.		
	Serious.	Slight.	Total.	Serious.	Slight.	Total.
1866........	326	1,012	1,338	25	75	100
'67........	245	1,152	1,397	18	82	100
'68........	235	1,433	1,668	14	86	100
'69........	199	1,373	1,572	13	87	100
'70........	276	1,670	1,946	14	86	100
'71........	207	1,635	1,842	11	89	100
'72........	120	1,374	1,494	8	92	100
'73........	166	1,382	1,548	11	89	100
'74........	154	1,419	1,573	10	90	100
'75........	163	1,366	1,529	11	89	100
'76........	166	1,466	1,632	11	89	100
'77........	159	1,374	1,533	10	90	100
'78........	170	1,489	1,659	10	90	100
'79........	159	1,559	1,718	9	91	100
'80........	162	1,709	1,871	9	91	100
'81........	167	1,824	1,991	8	92	100
'82........	164	1,762	1,926	9	91	100
'83........	184	1,960	2,144	9	91	100
'84........	194	2,095	2,289	9	91	100
'85........	160	2,110	2,270	7	93	100
'86........	151	1,998	2,149	7	93	100
'87........	175	2,188	2,363	7	93	100
'88........	121	1,867	1,988	6	94	100
'89........	153	2,185	2,338	7	93	100
'90........	153	2,402	2,555	6	94	100

"The number of fires in the metropolis in which life has been seriously endangered during the year 1890 has been 154; and the number of these in which life has been lost has been 44.

"The number of persons seriously endangered by fire has been 212, of whom 151 were saved, and 61 lost their lives. Of the 61 lost, 31 were taken out alive, but died afterwards in hospitals or elsewhere, and 30 were suffocated or burned to death.

* * * * *

"The number of calls for chimney fires has been 1,537. Of these 450 proved to be false alarms, and 1,087 were for chimneys on fire. In these cases there was no attendance of engines, but only of firemen with hand-pumps.

"The number of journeys made by the fire engines of the brigade has been 33,261, and the total distance run has been 65,455 miles.

"The quantity of water used for extinguishing fires in the metropolis during the year has been between 20 and 21 million gallons, or about 92,000 tons. Of this quantity, about 8 million gallons, or about 40 per cent. of the whole, was taken from the river, canals, and docks, and the remainder from the street pipes.

"During the year there have been 6 cases of short supply of water, 4 of late attendance of turncocks, and 8 of no attendance, making altogether 18 cases in which the water arrangements were unsatisfactory.

"Whenever the supply of water is intermittent, difficulty must occasionally arise, and the only remedy for this is to make the service constant; but during the year now passed no loss of any serious importance has arisen through the defects in the water arrangements, and I am bound to say that the water companies appear to have done everything in their power to meet the requirements of the fire brigade.

"I have once more to record my acknowledgments to the metropolitan police and the city police, who seem to vie with each other in rendering valuable services to the brigade, and whose success in this way has been, if possible, more marked than ever during the past year.

"The strength of the brigade is as follows:—

55	land fire engine stations.
4	floating or river ,,
52	hose cart stations.
179	fire escape ,,
9	steam fire engines on barges.
47	land steam fire engines.
78	six-inch manual fire engines.
17	under six-inch manual fire engines.
33	miles of hose.
105	hose carts and reels.
8	steam tugs.
13	barges.
224	fire escapes.
9	long fire ladders.
9	ladder vans.
2	,, trucks.
1	trolly for ladders.
2	trollies for engines.
13	hose and coal vans.
8	waggons for street duties.
7	street stations.
156	watch boxes.
706	firemen, including chief officer, second officer, superintendents, and all ranks.
16	pilots.
68	coachmen.
133	horses.
73	telephones between fire stations.
55	alarm circuits round fire stations, with 385 call points.
21	telephones to police stations.
9 48	telegraphs telephones } to public and other buildings.
15	bell-ringing fire alarms to public and other buildings.

"The number of firemen employed on the several watches kept up throughout the metropolis is at present 125 by day and 325 by night, making a total of 450 in every twenty-four hours; the remaining men are available for general work at fires.

"The list of wounds and other injuries for 1890 is as usual heavy; but this is invariably the case when the work is well done.

"There have been during the year 444 cases of ordinary illness, and 105 injuries, making a total of 549 cases, of which many were serious, and 2 resulted in death.

* * * * *

"A reference to the figures in this report will show that the total number of calls, including those for actual fires, supposed fires, chimney fires, and supposed chimney fires, has been 5,083, or just 14 a day, all of which have been attended by firemen with suitable appliances.

"In addition to attending fires, the brigade has kept 164,250 watches of twelve hours each, has made 26,529 hydrant inspections and 60,342 fire plug tablet inspections, has maintained all the machinery and appliances of the establishment in working order, written several thousand reports and letters, and carried on a variety of other work.

"The training and instruction of the 113 additional men sanctioned by the Council in 1889 was completed in last June, and I have every reason to be satisfied with the quality and capacity of these men, and with the general result of the increase on the efficiency of the service.

"This heavy addition to the unceasing work of extinguishing fires and keeping the large stock of appliances in order has made the past year one of severe and constant labour; but all ranks have gone through it well, and there has been no discontent or murmuring in connection with work or duties."

* * * * *

The following particulars (*a*, *b*, *c*) are obtained from the tables appended to the report, viz.:—

(*a*) The fires classified according to occupations, arranged in the order of frequency of occurrence; to which are added, for the purpose of comparison, the corresponding figures for the three previous years:—

Number.	Occupations.	Number of Fires.			
		1890.	1889.	1888.	1887.
1	Private houses	632	580	494	594
2	Lodgings	428	361	277	320
3	Victuallers	57	70	68	46
4	Grocers	46	45	34	43
5	Oil and colourmen	43	44	45	41
6	Drapers	39	21	30	49
7	Boot and shoe makers	38	42	38	28
8	Under repair and building	37	35	24	35
9	Bakers	35	30	31	26
10	Unoccupied	35	22	25	23
11	Stables	33	37	13	23
12	Confectioners and pastrycooks	32	21	25	23
13	Tailors, clothiers, and outfitters	30	31	36	29
14	Greengrocers and fruiterers	27	18	36	29
15	Printers	27	20	19	17
16	Builders	26	35	20	30
17	Coffee houses	26	35	29	38
18	Hotels (including club houses)	26	17	27	19
19	Tobacconists	25	25	22	32
20	Engineers and machinists	24	19	10	11
21	Cabinet makers	21	23	20	27
22	Offices	21	14	27	21
23	Furniture makers and dealers	18	18	14	24
24	Milliners and dressmakers	18	14	11	7

Number.	Occupations.	Number of Fires.			
		1890.	1889.	1888.	1887.
25	Railways	17	8	6	14
26	Booksellers, binders, and stationers	16	13	11	20
27	Contractors	16	12	13	10
28	Laundries	16	15	11	15
29	Refreshment rooms	16	20	19	22
30	Chandlers	15	17	18	24
31	Chemists	15	16	7	13
32	Farming stock	15	10	18	26
33	Butchers	14	16	14	17
34	Dairymen	13	12	8	7
35	Fishmongers	13	15	8	13
36	Corn dealers	12	17	13	15
37	Warehouses	12	19	9	19
38	Beershops	11	11	14	16
39	Fried fish shops	11	16	11	19
40	Schools	11	6	5	11
41	Stationers (wholesale)	11	8	9	3
42	Upholsterers	11	7	6	6
43	Coal and coke merchants	10	7	4	8
44	Mantle makers	10	5	—	4
45	Public buildings (not theatres)	10	13	7	6
		2,019	—	—	—
	Remainder, varying from 9 to 1	536	—	—	—
		2,555	—	—	—

(*b*) The fires classified under the causes to which they have been assigned, and arranged in the order of frequency of occurrence:—

Causes.	Number of Fires.
1. Unknown	745
2. Lamps (not gas) and lights (thrown down)	500
3. Gas (in various ways)	219
4. Sparks from fires, &c.	187
5. Defective, or improperly set—flues, hearths, stoves, &c.	179
6. Candles	163
7. Children playing with fire, matches, &c.	105
8. Hot ashes	92
9. Overheating of—flues, ovens, furnaces, boilers, stoves, &c.	85
10. Airing linen and drying stoves	60
11. Boiling over, or upsetting of fat, pitch, &c.	46
12. Foul flues, &c.	40
13. Gas stoves, portable, overheating of, goods falling on	20
14. Lucifer matches	18
15. Smoking tobacco	18
16. Lime slaking by rain and otherwise	16
17. Spirits, or vapour of spirits, in contact with flame	12
18. Spontaneous ignition	8
19. Fire, clothes coming in contact with	6
20. Fireworks	5
21. Friction of machinery	4
Miscellaneous, varying from 3 to 1	27
Total	2,555

(*c*) The following table, giving the totals of the fires for each day of the week for the last ten years, shows on the average that the largest number of fires occur on Saturday and the smallest number on Monday. The annual average number of fires for the last ten years is 2,201 :—

Years.	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.	Total.
1881....	270	267	315	288	279	253	319	1,991
'82....	285	246	296	267	281	274	277	1,926
'83....	297	334	309	318	269	295	322	2,144
'84....	296	330	304	335	338	340	346	2.289
'85....	331	319	321	338	326	300	335	2,270
'86....	294	293	294	317	306	304	341	2,149
'87....	327	297	352	336	357	292	402	2,363
'88....	288	273	267	295	299	272	294	1,988
'89....	318	281	363	305	384	337	350	2,338
'90....	334	362	382	385	347	338	407	2,555
Total...	3,040	3,002	3,203	3,184	3,186	3,005	3,393	22,013

V.—*English Literature in* 1890.

The following particulars are taken from the *Publishers' Circular* of the 31st December, 1890, in continuation of a series of similar extracts for previous years :—

"The *Academy* of March, 1890, remarks that the statistics of books published in the United States during 1889 show the same decrease, as compared with the figures for the preceding year, as the corresponding figures of the tables issued by the *Publishers' Circular*, and adds at the end of the paragraph, 'We can only suggest that the wants of the reading public are becoming more and more satisfied with newspapers, reviews, and magazines, and that authors consequently find their own best market in the same field.' This view is confirmed by the classified table of publications during 1890. The decrease in the number of new books and new editions is very nearly the same as that recorded for 1889. In educational works and books for the amusement of the young we find higher figures. Of novels there are not quite so many as in 1889, and yet the reader of fiction has had provided for him almost three new novels *per diem*, besides one in a new edition for each week-day. Perhaps the most striking fact to note is that artistic works, whether new or in new editions, have dropped to about half the number put forth in the preceding year. Poetry at first sight seems to be idler, but the increased number of new editions shows that at all events public taste does not flag in that direction. *Belles-lettres*, too, as a class, does not suffer by comparison with the production of 1889. Here, too, the number of reprints is also in excess, showing that interest in pure literature or standard works is not on the decline. Lastly, books which have to be ranged under 'miscellaneous' are greater in number than those of 1889.

Analytical Table of Books Published in 1890.

Subjects.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total of Books on each Subject for the Year	
Theology, sermons, biblical	* 17	34	45	44	47	39	41	21	10	77	78	102	555	
	† 2	13	20	7	11	7	15	7	10	15	22	24	153	708
Educational, classical, and philological	* 18	66	45	63	56	28	46	42	37	52	85	77	615	
	† 1	9	12	8	17	4	7	4	3	9	11	3	88	703
Juvenile works and tales	* 6	9	12	19	21	18	16	6	21	119	99	97	443	
	† 2	—	7	8	10	7	—	2	2	9	28	20	95	538
Novels, tales, and other fiction	* 36	65	66	65	86	45	73	58	54	103	131	99	881	
	† 3	25	33	42	33	15	39	21	30	12	38	32	323	1,204
Law, jurisprudence, &c.	* —	4	2	5	1	1	2	1	1	—	16	7	40	
	† 1	4	5	2	1	—	—	—	2	—	8	16	39	79
Political and social economy, trade and commerce	* 4	13	6	7	10	5	10	6	4	7	6	9	87	
	† 3	—	—	1	1	4	1	—	1	2	3	6	22	109
Arts, science, and illustrated works	* 1	4	—	6	1	10	10	1	3	10	1	7	54	
	† —	3	1	3	—	—	2	4	1	4	1	—	19	73
Voyages, travels, and geographical research	* 4	19	8	15	17	11	20	8	9	11	28	35	188	
	† —	5	7	9	6	8	11	4	2	4	9	4	69	257
History, biography, &c.	* 12	20	23	26	19	21	26	6	6	31	57	47	294	
	† 1	8	11	7	8	3	10	6	7	7	13	16	97	391
Poetry and the drama	* 4	3	9	10	8	7	5	3	2	3	26	34	114	
	† —	4	5	4	8	6	8	1	—	6	14	13	74	188
Year-books and serials in volumes	* 38	23	26	18	14	19	21	11	7	28	49	64	318	
	† —	—	1	—	—	—	—	—	—	—	—	—	1	319
Medicine, surgery, &c.	* 8	11	11	15	14	9	11	10	4	6	23	21	143	
	† 1	3	5	8	3	6	4	2	3	3	6	6	50	193
Belles-lettres, essays, monographs, &c.	* 3	8	11	21	12	9	29	6	4	11	27	30	171	
	† 7	12	7	15	17	16	16	6	13	17	27	38	191	362
Miscellaneous, including pamphlets, not sermons	* 24	29	44	41	42	32	33	54	29	48	53	82	511	
	† 3	15	8	10	18	8	7	3	8	10	9	21	100	611
	204	409	430	479	481	338	463	293	273	607	868	890		5,735

* New books. † New editions.

"The analytical table is divided into fourteen classes; also new books and new editions.

Divisions.	1889.		1890.	
	New Books.	New Editions.	New Books.	New Editions.
Theology, sermons, biblical, &c.	630	134	555	153
Educational, classical, and philological	557	124	615	88
Juvenile works and tales	418	93	443	95
Novels, tales, and other fiction	1,040	364	881	323
Law, jurisprudence, &c.	66	40	40	39
Political and social economy, trade and commerce	110	16	87	22
Arts, sciences, and illustrated works	112	34	54	19
Voyages, travels, geographical research	203	57	188	69
History, biography, &c.	310	114	294	97
Poetry and the drama	133	54	114	74
Year-books and serials in volumes	312	4	318	1
Medicine, surgery, &c.	133	49	143	50
Belles-lettres, essays, monographs, &c.	157	183	171	191
Miscellaneous, including pamphlets, not sermons	483	107	511	100
	4,694	1,373	4,414	1,321
	6 067		5,735	

VI.—*German Literature in* 1889 *and* 1890.

The following is taken from the *Publishers' Circular* for the 28th February, 1891:—

"We are indebted for the figures in the following list, so carefully compiled by the J. C. Hinrichs' Book Store in Leipzig, to the *Börsenblatt* of the German Booksellers' Union:—

		1889.	1890.
1.	Collected editions—literary, science, bibliography	482	519
2.	Theology	1,582	1,763
3.	Jurisprudence, politics, statistics, mercantile law	1,549	1,638
4.	Medicine and surgery, veterinary medicine	1,248	1,353
5.	Natural science, chemistry, pharmacy	852	909
6.	Philosophy	188	152
7*a*.	Pedagogy, German school-books, gymnastics	2,083	2,099
7*b*.	Juvenile books	591	521
7*c*.	The higher education of women	28	33
8.	Ancient classics and oriental languages, science of antiquity, mythology	644	626
9.	Modern languages, old German literature	591	602
10.	History, biography, memoirs, correspondence	892	874

		1889.	1890.
11.	Geography, travels	534	600
12.	Mathematics, astronomy	228	215
13.	Art of war, horse rearing	525	569
14.	Commerce, technology	840	929
15.	Architecture, engineering, railway construction, mining, navigation	383	446
16.	Forestry and venery	109	100
17.	Domestic economy and agriculture, horticulture	430	464
18.	Belles-lettres (novels, poems, plays, &c.)	1,715	1,731
19.	Fine arts (painting, music, &c.), shorthand	768	787
20.	Popular literature, almanacks	723	796
21.	Freemasonry	22	19
22.	Miscellaneous	558	621
	Maps	421	509
	Total	17,986	18,875

"It is noticeable that whereas the total increase of publications in 1890 over 1889 is barely 1,000, those which deal with bodily ailments have increased by 100, and those treating of theology are 200 in excess of the previous year."

VII.—*Notes on Economical and Statistical Works.*

The Scope and Method of Political Economy. By John Neville Keynes. London: Macmillan and Co., 1891.

In the volume before us Mr. Keynes has attempted and, we venture to think, successfully achieved, a task which was urgently needed. Since the republication, just before his death, of the lectures which Cairnes had delivered some seventeen years previously on the *Character and Logical Method of Political Economy*, no book has appeared in England which has dealt in a comprehensive and judicial manner with the whole subject. There have, indeed, been contributions, sometimes partisan and always fragmentary, to such a treatment; but there has been nothing more. Mr. Keynes justly describes Cairnes' book as a "work of admirable lucidity, which has long been considered the authoritative text book of English political economy, so far as concerns its logic." But some seventeen years have again elapsed since its publication; and the question of the appropriate method of inquiry has occupied a considerable, and perhaps even excessive, share of the debates and controversies which, throughout this period, have never been absent from economics. In this volume Mr. Keynes has reviewed the contentions of the different combatants with patient thoroughness, and summed up the whole question with judicial calmness. He has brought within a small compass a great amount of valuable observation, which he has handled with discriminating acuteness. He has, we venture to think, produced, for this generation at least, "the authoritative text book of English political economy so far as concerns its logic."

Mr. Keynes endeavours throughout to be scrupulously fair, strictly logical, and unmistakeably lucid. The key-note of the volume is to be found in its comprehensive and judicial spirit. He successfully shows that political economy has not one method, but several. In an introductory chapter he dwells on the special importance of an inquiry into method in a science, which deals with such complex phenomena, and has suffered from an abundance of fallacious reasoning, and an excessive dogmatism, which has unnecessarily confused the issues involved. He contrasts the two prevalent conceptions of economics as, on the one hand, a theoretical, abstract, and deductive science, and, on the other, an ethical, realistic, and inductive science. He shows that the advocates of either method have belied the exclusiveness of their theory by the comprehensiveness of their actual practice, and that the "method of political economy cannot adequately be described by any single phrase." In his second chapter he proceeds to discuss the relations of political economy to morality and practice. He distinguishes between economic uniformities, economic ideals, and economic precepts; and in a note to this chapter he gives a terse but suggestive treatment of the place of *laissez-faire* in economics as an assumption of reasoning, and also, what is sometimes insufficiently distinguished from the first use, as a maxim of conduct. In the next chapter he traces the relations of political economy to physical science and psychology, both of which it presupposes. He regards it as a positive science, and he furnishes definitions of wealth, with which it deals, and of itself. In a note to this chapter, he insists on the interdependence of the different departments into which it is customarily divided. In the following chapter the relations of political economy to general sociology are considered. The necessity and advantage in its due place, and within its proper limits, of abstraction are shown, and the appropriateness of a more realistic treatment of the dynamics of the subject as distinguished from its statics is admitted. The fifth chapter contains a careful and instructive examination of the place and aim of definition; and the following chapters are occupied with a review of the different methods of economic inquiry—that of specific experience, and that of deduction, the symbolical and diagrammatic method, the use of economic history, and the employment of statistics. Mr. Keynes adheres to the English tradition of a method mainly deductive, and he dwells on the difficulties of applying the recognised inductive methods to economic inquiry. But he guards the deductive method from some of the common misapprehensions which are current about it; he criticises Ricardo's use of it with scrupulous fairness to that economist, but also with a due regard to his characteristic defects; and he emphasises the importance of observation in the preliminary and concluding stages. He discusses with discriminating fairness the functions of economic history, although he refuses to a low it to displace economic theory. It may, he shows, illustrate, as it may criticise and establish that theory, and trace the history of its origin and development at different epochs in the hands of different writers. He examines very carefully the amount of relativity or universality attaching to different portions of economic reasoning; and in the seventh and tenth chapters he investigates the use, and the limits of that use, of mathematics, and statistics. Throughout the book he betrays an extensive knowledge of economic literature both in this and other countries.

La Population Française (tome deuxième). Par E. Levasseur. Paris: Arthur Rousseau, 1891.

In the September number of the *Journal* for 1889 we noticed the first instalment of the great work, in which M. Levasseur hoped to supply economics with the elements of a theory of population, as well as to impart a knowledge of the social condition of his own country. We have now to congratulate him on the accomplishment of another stage of his vast undertaking; and, in view of the approaching congress in London on the subject of Hygiene and Demography, the appearance of the volume before us is very opportune. M. Levasseur's book will form, when it is completed, a notable contribution to demography; and the subject has so grown in his hands that he has been obliged to postpone the execution of part of the comprehensive programme, which he sketched in his first volume, to a third and final volume. In that first volume he had given us an introduction on the general character of statistics, a first book on the history of the French population anterior to the commencement of a period of more accurate data with the great Revolution, and part of a second book on the condition and the movement of the population and the considerations arising thereout. In the present volume we have the completion of this second book, and a third book on moral statistics; and the third and final volume is to contain a fourth book on the laws of population, and the equilibrium of nations.

The second book, part of which is thus contained in the volume before us, consists of three subdivisions, two of which are here presented. Of these two the first deals with the movement of the population, and the second with the general considerations which are suggested by it. In chapters vii to ix, the statistics of births, in chapters x and xi, those of marriage, and in chapters xii and xiii, those of death are considered; and in the fourteenth chapter a general contrast is instituted between the movement of the population of France and that of foreign countries. These chapters deal in many places with a subject of very great interest at the present moment; for the French nation seems to have reached that "stationary" state which has been often imagined by economists, but seldom, if ever, realised in modern times. M. Levasseur says that the average *natalité* of France is, and has been for the last twenty years, 1 in 40, or 25 to the 1,000. He supplies a table showing in figures the births, marriages, and deaths from 1801 to 1888, and another table exhibiting by that graphic method, of which he makes constant and varied use throughout his work, the curves of the births, in their absolute number, in their ratio to the population, and to the yield of the harvests. He traces the history of the changes which are thus indicated; and he points out that only twice in the nineteenth century have the number of births fallen below 900.000, and that one of these years was that of the Franco-German War, when France suddenly lost one of the most prolific of districts, and the other was in 1888. This may indeed also, he argues, be partly attributed to the War, which reduced the number of young men who would arrive at a marriageable age ten years later, and therefore the consequent number of births. But there is, he thinks, evidence of a more general, and therefore more serious, cause. The curve of births furnishes a record of the political prosperity and the moral condition of the people. The number of births to the population had been 32 to the 1,000 in 1801-10. and was but 24 in 1881-88; and it had steadily diminished in each successive decade. It was true that, especially in the earlier periods, the figures were not free from suspicion of error; but the evidence of a decline was incontestable, although it was perhaps more rapid in the first than in the last forty years, despite of the louder tone and greater number of complaints in the later period. M. Levasseur finds that in France, as in England, the curve of births no longer corresponds so closely as it once did to the results of the harvests; that the months of the winter and the spring are the most prolific; and that certain *départements* have, since the beginning of the century, been found at the top or the bottom of the list, while the intermediate positions have had different occupants from time to time. The south-west and Normandy have been especially remarkable for a decrease in the births, and the Pyrenees for an increase. These results are illustrated by means of variously shaded maps, and in his eighth chapter M. Levasseur passes to the statistics of illegitimate births. The ratio of such births to the total number has undergone scarcely any variation in the period from 1820 to 1880. Before the commencement of this period it was of smaller proportions, and had then grown, and since the end of the period it has grown again. The urban population furnishes a larger proportion of these births than that of the rural districts; but the ratio has decreased from 1850 to 1883 in the towns, and slightly increased in the country. In his ninth chapter M. Levasseur investigates the numbers of the still-born, the amount of infanticide and abortion, and the number of foundlings. He shows that the definition of the still-born is not uniform in all countries, and that in France, before 1836, they were not regularly registered. In the next chapter he proceeds to deal with statistics of marriage; and here again he points out that in 1884-88, at a time of complete peace, the rate of marriage had fallen to a level only known before at times of invasion or distress. A population of more than 38 millions did not supply in 1887 and 1888 more marriages than a population of less than 34 millions in 1835 to 1840. The average age of marriage is, he shows, about 30 for a man, and 25 for a woman. In chapter xi the statistics of separations and divorce are examined; and in the twelfth chapter M. Levasseur approaches those of death. He supplies tables showing the comparative estimates of the experience of friendly societies in different countries respecting the number of days of sickness per member; and some special tables of French societies and statisticians, and of the Paris hospitals on the questions of illness and mortality. He investigates the different causes of death. The increase of suicides has been, he shows, since 1826, continuous in France, as in nearly all other countries—and especially in the towns, and among the male sex; but France is very favourably situated among European countries in the matter of deaths by accident. The rate of general mortality has decreased, until it is now (1886-88) 22·2 per 1,000. The males exceed the females; the unmarried supply half the number, the married 30, and the widowed 20 per cent.; the towns are more unhealthy than the country, and certain *départements* than others. In the fourteenth chapter comparisons are instituted between France and other countries. The low rate of births is very evident, being far less than the neighbouring countries of Belgium, Switzerland, and Germany, and even below that of Ireland. The larger proportion of boys is not peculiar to France, nor the greater fecundity of certain months, while, as respects illegitimate births, France is a little within the average. The differences of marriage-rates are more considerable; and here France is a little below the average of Europe, which is 8·4 to the 1,000, and a little above the average in the matter of consanguineous marriages. With respect to the death-rate it is favourably situated, being well above the European average, which is 28 to the 1,000.

In the third part of his second book M. Levasseur presents some general considerations on the condition and movement of the population. In the first chapter he examines the constitution by age of the population of France, and contrasts it with that found in other countries. He shows that, comparing the present time with that of the reign of Louis XVI, there are more old persons and less children. The last fact is abnormal, but, as regards the proportion of adults, France is favourably situated. In the next chapter the question of longevity is considered; and tables of survival and of the expectation of life are investigated. The principal methods of constructing such tables are examined—the method of Halley, which is founded on the ages at death, that of Deparcieux, which is based on selected instances or special classes, and is generally followed by insurance societies, and the demographic method, which compares the ages of death and the age-constitution of the whole population. In this respect, again, France occupies an average position between Bavaria and Italy at the lowest, and Norway at the topmost round of the ladder. At all ages the average expectation of life is better now than it was in 1789. In the succeeding chapter the growth of urban population, which is a characteristic of old and new countries alike, is brought under review. In France it has been a constant phenomenon since an earlier time even than 1789. Less labour is needed in agriculture owing to new crops and new machines; and the competition of the large industries of the towns has ruined the small crafts of the country villages. On some grounds the change is to be deplored, but M. Levasseur urges that it must not be forgotten that it implies and accompanies an increased efficiency in the production of wealth, for less labour is now needed in the country to furnish the food and the raw materials for the inhabitants of the towns. The increase, however, of cities is very remarkable, and Paris has grown 326 per cent. in number of inhabitants between 1861 and 1886, while the whole of France has only increased 40 per cent. In the next chapter M. Levasseur makes some general remarks on the subjects treated in the third part of his second book; and he then proceeds in his third book to moral statistics, which he discusses in three chapters, dealing respectively with vice and crime, instruction and education, and the laws of demography, and individual liberty.

Studies in Statistics. By George Blundell Longstaff. London: Edward Stanford, 1891.

The statistical studies, which Dr. Longstaff here presents to his readers, are divided, as he states in his preface, into three main sections. "The first three chapters are of an introductory and elementary character," and contain some general observations on the use of statistics, on the method of ascertaining death-rates, and the importance of having regard in such statistics to the "age-constitution" of the population, and on the chief features of the birth, death, and marriage-rates of England and Wales for fifty years. In the third and last of these three introductory chapters Dr. Longstaff states that the "most notable thing" about the birth-rate curve is its "continuous fall from 1876 to 1886," about the marriage-rate curve, that it has not for the last eighteen years corresponded to the fluctuations in the price of wheat, and about the death-rate curve, that it is "of a more jerky character" than the others, "rising or falling abruptly," in consequence "to a large extent of epidemics," and that it has been marked by a "striking fall in the last fourteen years." In the course of these chapters, as throughout the book, Dr. Longstaff makes abundant use of the different varieties of the graphic method, in consideration of the claims of the "general reader," who will thus have presented to him in an easily intelligible form the results, perhaps of tedious calculations, which the "severe statistician might have preferred to be displayed in lengthy tables." For much of his material he expresses his indebtedness to the census reports and the registrar-general's returns.

In the concluding section of his book he deals with statistics of a medical and somewhat technical nature, which are, however, of considerable interest and importance. In chapter xv the "causation of summer diarrhœa" is discussed, and some curious statistical results are obtained. "It prevails mainly in towns, but with some remarkable exceptions," such as Halifax and Merthyr Tydvil. It prevails chiefly during the summer months of high temperature, and is "most fatal in years with hot summers, especially if they be at the same time dry;" and it "kills persons of every age, but young infants in by far the largest proportions." It does not seem, therefore, to be due to "bad water and filthy privies," which "are as common or commoner in the country than in the large towns," or to fruit, ripe or unripe, which "is not extensively eaten by children under one year of age," or to "artificial feeding," which "would not account for the deaths of adults or old people," or "of children between the ages of two and five." "As a working hypothesis" the "exciting cause" may be regarded as "intimately connected with the process of putrefaction, however and wherever arising." In the following chapters Dr. Longstaff investigates by similar methods the "relationship between scarlatina, erysipelas, puerperal fever, and certain other diseases," and "the geographical distribution of diphtheria in England and Wales," which he finds to prevail not so much where the population is dense as where it is "scattered" in rural districts, and even those "reputed to be exceptionally healthy." He therefore thinks that its cause should be sought, "not primarily in any high development of civilisation, such as sewers, but rather in some condition associated with a more primitive mode of life." In chapter xviii he inquires into the question whether phthisis, bronchitis, and pneumonia are "epidemic diseases;" in chapter xix he furnishes "a calculation of the probability of the accidental and fatal incidence of phthisis upon both husband and wife;" in chapter xx he investigates the "seasonal prevalence of continued fevers in London;" and in chapter xxi he examines the statistics of hydrophobia, of which "at all ages, except the extremes of life, very many more males die than females." In chapter xiv he reprints a paper contributed to the Statistical Society in 1884, "on the recent decline in the English death-rate considered in connection with the causes of death," and in chapter xiii one on "suggestions for the census of 1891," which was read in June, 1889.

In chapters iv to xii that section of the book is contained, which "consists of an exposition" "of some of the more striking facts and more pregnant results of the vast growth of population in Europe, America, and the British colonies within the last half century." These chapters contain perhaps what is of most interest for the general public in Dr. Longstaff's volume, although the concluding section of his book is of instructive importance, as pointing to the way in which statistics may tend to the improvement of health by indicating the cause and nature of disease, and the introductory section is a necessary preliminary to the chapter on the growth of population. The "statistics of migration" are, he states, "not very satisfactory;" and Russia he has "designedly" "almost ignored," partly because it seemed to be "essentially an Asiatic power," and partly because "Russian statistics have of late years been much behind the age, and scarcely comparable with those of other European countries." It is "chiefly the growth of Britons," and of the "new nations of the earth that have been founded, or are in the process of foundation, by Britons" with which he is concerned. In chapter iv he considers the "growth of population in England" itself; and in chapter v the "migrations of the people in the nineteenth century." In chapters vi to ix he proceeds to examine the "growth of new nations" in the United States, Canada, South America, South Africa, and Australasia. He then, in chapter x, investigates that common characteristic of old and new nations alike—the "growth of cities;" and in chapter xi the population of the most conspicuous example of that growth is brought under review under the heading of "the population of London and its migrations." In chapter xii some deductions, of great practical interest, from these figures are considered with reference to the food supply. "The remarkable developments of the past fifty years" can, he argues, be "summed up in a sentence." "The application of novel mechanical appliances has rendered possible an unparalleled increase of population, by bringing within reach unlimited supplies of food." "Nothing exactly like it can ever occur again," for "no fresh mechanical inventions can discover for us vast regions of fertile soil lying under a temperate sun." If the population of England and Wales grows at the present rate, by 1901 there will be some 7 millions more persons than in 1881; and schools for 1,500,000 children, churches for 1,000,000 Anglicans, chapels for 500,000 nonconformists, asylums for 15,000 lunatics and idiots, hospitals for 6,000 sick, institutions for 400 blind and for 300 deaf and dumb, prisons for 7,000 criminals, and workhouses and schools for 48,000 paupers, will be among the new public buildings which will probably be required. Migration he distinguishes as *intra-migration* within the country itself, *inter-migration* from country to country "within the limits of one continent," and *ultra-migration* from continent to continent. Of the total loss of fourteen counties in England and Wales by the first kind of migration, "nearly one-half" of the 82,000 persons to which this amounted "consisted of Cornishmen thrown out of employment by the failure of the mines." The "most notable countries" attracting the second kind of migration are France and England; and in the former "no less than 18 per cent. of the total increase" of population since 1872 "consists of foreigners," and chiefly of Belgians and Italians. The "great immigration of Irish and Scotch" into England combines with the imperfect registration of births in the earlier decades to show that, had no emigration taken place from England and Wales during the forty years 1841-81, "the population would only have numbered 88,541 more persons." With respect to the third form of migration, or *ultra-migration*, the "radiating centres of emigration" are Great Britain and Ireland, Germany, the Scandinavian countries, and Italy. In 1881-82 the "number of emigrants from Norway *exceeded* the natural increase, and in Sweden in the same years nearly equalled it." The four regions of the world, which attract immigrants, are North and South America, South Africa, and Australasia. Of these the "United States of North America stand *facile princeps;*" but "almost alone among the great powers (Russia and Spain excepted) America does not give the world her yearly record of marriages, births, and deaths." Dr. Longstaff arrives at a "true rate of natural increase" of "something like 20 per 1,000 per annum." "The men of colour at present form 13 per cent. of the whole population," and "nearly one-third of the whole white population is more or less foreign in sentiment and colour." Some of these elements can be absorbed and amalgamated without danger or difficulty, some are more isolated and integral units. The Indians are "still numerous but relatively insignificant." The Chinese "are not as yet, numerically at all events, very formidable," and the Chinaman is "not a settler, but a mere bird of passage." "The very rapid increase," however, "of the coloured population, and its concentration in certain States, constitutes the gravest social and political danger to the future of the Republic." "The Scandinavians, in many cases, form compact settlements;" but the barrier of the language may be overcome by the teaching of English in the schools. The Germans are also concentrated, to a large extent, in a few of the States, and in New York city are almost as numerous as the Irish; but the latter are more active politicians, and lose their land-hunger in the States, preferring to remain in the cities. Passing to Canada, Dr. Longstaff notices the frequency of the censuses of this country, as many as nine being taken in the seventeenth, and nine of lower Canada in the last century. The foreign born are 14 per cent. of the population, as contrasted with 13 per cent. in the States; but the race-mixture is much less remarkable. The predominant element is French, which is not, however, in sympathy with the government and influences prevalent in republican France; and the Scotch are not much less numerous than the Irish, and far more energetic, wealthy, and powerful. The French element does not, however, amalgamate with the other elements of the population, partly because of language, and partly in consequence of religion, which is likely also to render them unwilling to approve of annexation to the United States. Proceeding in the eighth chapter to South America, Dr. Longstaff finds that Brazil "is still essentially Portuguese;" that to Uruguay Spanish and Italian immigrants have come in large numbers during the past twenty-five years; and that the latter nation has also emigrated to Brazil in important proportions, and forms the largest element of the immigrants into the Argentine Republic. About South Africa there is "little statistical information available," but "the blacks are twice as numerous as the whites," and "among the latter the Dutch largely outnumber the English." The net result of emigration to the Cape is "very trifling." In Australasia the growth of population has been very rapid and is "unexampled," while "New Zealand has shown a most extraordinary rate of progress," from less than 100,000 whites in 1861 to 578,482 in 1886. In both Australia and New Zealand "the proportion of foreigners" to Britons is "insignificant." In chapter x Dr. Longstaff considers the growth of cities in Canada, Queensland, New Zealand, New South Wales, Victoria, "where the four largest towns contained more than two-fifths of the whole" population in 1881, and the United States. This growth is thus a feature of the new world, as it is undoubtedly of the old, in England, France, Belgium, Germany, and Austria. In the next chapter he devotes special attention to London, the population of which exceeds Scotland, Switzerland, and our own colonies in the Antipodes, is double that of Norway or Servia, and is more than equal to those of Paris, Berlin, and Brussels taken together. In his twelfth chapter, on "Food Supply," he arrives at the conclusion that, to satisfy the probable requirements of the growing population of the United States and of western Europe, "2,600 square miles of virgin land," "or more than the area of

Devonshire," "must be brought under the plough every year." "It is, therefore, no exaggeration to say that the time will come, and that before the end of the next century, when men will once more think seriously of Malthus and his warnings."

Modern Changes in the Mobility of Labour. By H. Llewellyn Smith. London: Henry Frowde, 1890.

In this little pamphlet Mr. Llewellyn Smith has made a suggestive, though necessarily not a very thorough, contribution to the discussion of what Mr. Bagehot called one of the postulates of English political economy. The pamphlet is a report to the Toynbee Trustees, on the results of an investigation conducted during a period of residence in Bradford and the West Riding of Yorkshire. The report is an expansion, in the main, of a paper read at the Leeds meeting of the British Association; and it is followed by some statistical appendices, showing the former occupations of themselves and their parents, and their birth places, and places of last employment, of the workers in Mr. Lister's silk mills at Manningham. Mr. Smith does not think that any very definite conclusions can be drawn from these tables; and the observations contained in the body of the report have rather, as it seems to us, the appearance of notes to be more fully developed hereafter. Part of this fuller examination we have already had in Mr. Smith's contribution to Mr. Booth's first volume on a more special side of the question; part we look forward to in the second volume of that important undertaking; and part, we hope, may be expanded by Mr. Smith into a larger book of his own. In this pamphlet he establishes some instructive distinctions. One is between actual movement and mobility. "The penny post has increased mobility," by allowing the news of a vacancy to be transmitted more rapidly to a greater distance; but it has "diminished movement" by avoiding the "old tramping in search of employment." A second distinction is to be found between the "initial friction" required to be overcome in the passage from one occupation to another, and the "barriers" "based on natural or acquired aptitudes." One tendency of machinery is to substitute the former of these for the latter. A further distinction is drawn between two "modes" of mobility, either "between different processes in the manufacture of the same product," or "between similar processes in the manufacture of different products." "Machinery, while on the one hand intensifying the tendency to division of employments, tends on the other to re-integrate them on fresh lines, the new lines being determined by the nature of the process rather than by that of the product." Throughout these pamphlets Mr. Smith has "especially" in view mobility between trade and trade.

Deutsche Wirtschaftsgeschichte des 10 *bis* 12 *Jahrhunderts.* Von Dr. Karl Theodor von Inama-Sternegg. Leipzig: Duncker and Humblot, 1891.

In 1879 Dr. Inama-Sternegg published the first part of his *Deutsche Wirtschaftsgeschichte*, in which he brought his account down to the close of the Carlovingian period. Since that time twelve years have elapsed, as he states in his preface, before he has been able to present in the volume before us a continuation of his history. Among other obstacles, which have prevented the resumption of this work, his duties as President of the Statistical Central Commission of the Austrian Empire have occupied a prominent place; and he has discharged those duties with such advantage to statistical study, that we can hardly regret that they have diverted his attention from this history, which may perhaps be said to be primarily economic, and only in a secondary and subordinate sense statistical. Dr. Inama-Sternegg, however, illustrates the account contained in the main part of his book by the statistical appendices at the end, and he has brought to his historical study the strenuous desire for accuracy, and the calm and critical judgment of facts, which are, not indeed the exclusive prerogative, but the essential attribute, of the true statistician.

The period of history embraced within the scope of this volume extends from the tenth to the twelfth century, and is a period of considerable economic importance. It is true that, as Dr. Inama-Sternegg shows, little more than the rudiments of trade and exchange are to be discovered in it; but towards the close, at any rate, of the period, the beginnings of the commercial power and political liberty of the towns were apparent, and the crusades, which were one of the most notable incidents of the time, by draining the purses and impoverishing the resources of the feudal lords, helped towards the development of trade, and the growth of independent traders. But it was the establishment of the feudal system, with its hierarchy of occupiers of land, and possessors of interests in land, which was the great economic fact of the age; and Dr. Inama-Sternegg traces the history of the origin and growth of this system with exhaustive minuteness. He shows with detailed precision the different modifications which it underwent, and the influence of the various forces which in time acted and re-acted upon it. The significance of this feudal system is brought into greater relief, when it is remembered that throughout the period a struggle, sometimes concealed beneath the surface, sometimes open and avowed, was being carried on between the Church and the nobility for the preponderance of power; and Dr. Inama-Sternegg traces the growth, where there was growth, and the diminution, where there was diminution, of the landed possessions of the Church. He has, in short, furnished a very careful and minute representation of a period which, so far as its economic aspect is concerned, is veiled in obscurity. In his third volume, which will close with the end of the middle ages, he promises to supply a copious and detailed index; and to the present volume he has prefixed a minute analysis of contents.

The treatment which he gives to the subject is so elaborate, that we cannot hope to do more in this notice than furnish a very inadequate summary. His book is divided into six sections, which are followed by some concluding observations, and by the statistical appendices to which we have before referred. Of the six sections the first deals with the consolidation of the territory of the Empire, and with the colonisation on its borders, and especially in the East. The history of this colonisation is traced in its various forms, and the influence exercised by it on the condition and movements of the population is examined. In the second section the transformation undergone by the social organisation is investigated in detail. The great lord of the manor is described as the characteristic product of the social development of the Carlovingian period, and the rise and fall of different classes of free and unfree persons under the manorial organisation are carefully traced. The causes, which contributed to the decline of freedom, are minutely examined. The effects of confiscation or tithe, or insecurity of rights, are successively investigated. The influence of the crusades on the constitution and position of the different classes is shown, and the development of certain services, military or otherwise, is traced. In short, the way in which, by various degrees, and in different directions, the power of the lords of the manor was extended, is exhibited in this second chapter. In the third the distribution of landed property, and the constitution of the landed hierarchy, are shown. The position of the king, of the secular and of the ecclesiastical powers, is investigated; and the origin and character of "beneficial" and precarious tenures are examined. The increase of the king's possessions is shown to have been due to several causes, partly to the appropriation of property to which there was no heir, partly to confiscation, partly to enactments on the possessions of the Church, and partly to conquest. Its diminution is similarly traced to different influences, whether by way of grants to churches and monasteries, and to recipients of *beneficia*, or of other causes. In the same manner the increase and decrease in the landed possessions of the laity and the clergy are shown; and in his fourth chapter Dr. Inama-Sternegg proceeds to consider the sources and distribution of the income arising from the land. He shows how the social organisation of the time, with the lord of the manor as its conspicuous feature, affected the different products, which land may yield, or be instrumental in causing. He discusses in succession, among other products, corn, pulse, hemp, flax, hops, wine, cattle, horses, and swine. The carriage of the produce, the various agricultural crafts, the position of tenants by *socage*, the modifications which this system of tenure underwent, and the status of other classes of free tenants, are fully considered. In the next chapter the commencement of independent industry is shown, and the position of mining and the salt industry specially examined. In the sixth chapter the beginnings of commerce and trade are similarly investigated, and the history and development of markets and money considered. To this sixth chapter some general conclusions on the characteristics and consequences of the period are appended, and these are followed, at the end of the volume, by the statistical tables.

Die Finanzen Oesterreichs von 1701 *bis* 1740. Von Dr. Franz Freiherrn von Mensi. Wien: Manz'sche, 1890.

In this volume a minutely elaborate account is given of the finances of the Austrian Empire during the first half of the last century. It is compiled from official records, and the appendix to the volume contains several statistical tables. The author dwells in the preface on the great importance of the state of finance as an integral part of the real history of a nation; and he shows that the special period, with which he deals in this volume, was one when the finances of the Austrian Empire in particular were put to a very severe strain by the necessities arising, in an especial degree, out of the war of the Spanish succession. The volume commences with the beginning of that war, and it ends with that of the Austrian succession; and it traces the various ways in which revenue was raised, and finance administered during that period. It consists of fourteen chapters and a statistical appendix. In the first chapter the general position and arrangement of Austrian finance at the opening of the period are explained. The organisation of the exchequer, and of the subordinate departments, the monetary system of the empire, and its sources of revenue for military and administrative purposes are here examined. The contributions to the revenue furnished by different districts—the Tyrol, Bohemia, Moravia, Silesia, and Hungary—are successively reviewed, together with the income of the so-called "Roman Empire." In the second chapter some observations of a general character are made on the national indebtedness of the time. The various objects for which debt was incurred, and the various forms which it took, whether floating or funded, together with the various incidents of its management, such as the payment of interest, the repayment of capital, and the security guaranteed, are examined. In the third chapter the administration of the budget, and the different credit-operations conducted within the boundaries of the empire during the war of the Spanish succession, are brought under review in five sections. The various war budgets and protective measures introduced up till the death of Joseph I, the attempts at financial reform made from 1700 to 1714, the negotiations entered into with banking houses, such as the Oppenheims and the Wertheims, and the higher State officials, and the other credit-operations in connection with various funds, are investigated in these different sections; and in the next chapter the author proceeds to trace the course of banking history in Vienna from 1703 to 1720. He commences with the Bank of Giro, and gives an account of its foundation and institution, its action in its original form, its reorganisation, and its new constitution; and this covers the period from 1703 to 1705. With 1706 he passes to the Bank of Vienna, the history of which he traces first from 1706 to 1711, and then from 1711 to 1720. In the two following chapters other modes of raising revenue are examined, whether by mortgage or by forced contributions. In the seventh chapter attention is diverted from operations within the empire to the methods adopted for obtaining money from foreign sources. The loans raised in Holland, England, Genoa and other parts of Italy, the "Roman Empire," Switzerland, and the Austrian Netherlands, are investigated in turn. In chapter viii the methods of obtaining revenue by lotteries and "tontines" are examined; and in the ninth chapter a detailed account is given of the origin and formation, the objects and aims, the growth and development, and the final issue, of a great financial scheme and banking organisation from 1716 to 1723. In the next chapter the history of the Bank of Vienna from 1721 to 1741 is traced; in the next that of the budgets from 1723 to 1737. In the thirteenth chapter the financial condition of the empire at the death of Charles the Sixth is reviewed, and the fourteenth and concluding chapter contains a history of the Vienna Bank from 1740 to 1749.

VIII.—*Additions to the Library.*

Additions to the Library during the Quarter ended 31*st March,* 1891, *arranged alphabetically under the following heads:*—(a) *Foreign Countries;* (b) *India, Colonial and other Possessions;* (c) *United Kingdom and its several Divisions;* (d) *Authors, &c.;* (e) *Societies, &c. (British);* (f) *Periodicals, &c. (British).*

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(a) **Foreign Countries.**	
Argentine Republic—	
BUENOS AYRES. Boletin mensual de Estadistica Municipal. 1890. Nos. 5 e 6. Fol.	The Municipal Statistical Bureau
Boletin del Instituto Geográfico Argentino. Tomo xi. Cuadernos 4—9. 1890	The Institute
Austria and Hungary—	
Oesterreichische Statistik—	
Band xxiv. Statistik der Rechtspflege. Heft 4. Die Verhältnisse der Oesterreichischen Strafanstalten und der Gerichtsgefängnisse, 1886	The Central Statistical Commission
Band xxv. Heft 2. Statistik des Sparcassen, 1888	
Band xxvi. Statistik der auswärtigen Handels im Jahre 1889. Heft 2. Waaren-Einfuhr. Heft 3. Waaren-Ausfuhr	
Statistische Monatschrift. Nov., Dec., 1890. Jan., 1891	
Hungary—	
Magyarország Aruforgalma Ausztriaval es mas Orszagokkal. (Monthly Trade Returns.) Aug.—Oct., 1890	The Royal Hungarian Statistical Bureau
Statistisches Jahrbuch für Ungarn, 1888. Heft 7, Das Communicationswesen, 1888. Heft 8, Ungarns Rechtspflege, 1888	
Ungarns Waarenverkehr mit Oesterreich und anderen Ländern, für Jänner-Juni, 1890. La Fol.	
Prague—	
Bulletin hebdomadaire de la Ville de Prague et des Communes-faubourgs. (Current numbers)	The Statistical Bureau of Prague
Verwaltungsbericht der königlichen Hauptstadt Prag für die Jahre 1885 und 1886. 8vo.	
Belgium—	
Annales des Travaux Publics. Tome xlviii. Cahiers 2 et 3. Plates. 1890	The Administration of Mines
Aperçu de la situation du Royaume dressé en Avril, 1889. 8vo.	J. S. Keltie, Esq.

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Belgium—*Contd.*	
Mouvement Commercial avec les Pays Étrangers. Oct.—Dec., 1890, et Jan., 1891	The Bureau of General Statistics
Brussels—	
Bulletin hebdomadaire de Statistique Démographique et Médicale. (Current numbers)	Dr. E. Janssens
Rapport sur les opérations du service d'Hygiène pendant 1889	
BRUGES. Verslag over het Bestuur en den Toestand van Stadszaken, 1889	The Burgomaster
HASSELT. Exposé de la situation administrative de la Ville. Exercice 1889-90	
Chile—	
Estadistica Comercial de la Republica de Chile correspondiente al año de 1889	The Statistical Bureau
Sinopsis Estadistica y Geografica de Chile en 1888	J. S. Keltie, Esq.
China—	
Customs Gazette. No. 87. July—Sept., 1890	Sir Robert Hart, G.C.M.G., Peking
List of Chinese Lighthouses, Light Vessels, &c., for 1891. Maps and diagrams	
Medical Reports for the half-year ended 30th Sept., 1888. 36th issue	
Journal of the China Branch of the Royal Asiatic Society. New series, vol. xxiv, 1889-90. 8vo.	The Society
Colombia. Informe que presenta el Ministro de Fomento al Congreso de 1888. 8vo	J. S. Keltie, Esq.
Costa Rica—	
Anuario Estadistico de la Republica, año 1888. Fol.	"
Memoria de la Secretaria de Hacienda y Comercio, 1889. Fol.	
Denmark. Nationalökonomisk Tidskrift. Ny Række. Hefte 1. 1891	The Danish Political Economy Society
France—	
Annuaire Statistique de la France. XIII^e^ année, 1890	The Bureau of General Statistics
Commerce. Tableau général du, pendant 1888. La 4to.	J. S. Keltie, Esq.
Enseignement Primaire. Résumé des états de situation pour 1885-86—1888-89. La 8vo	
Enseignement Supérieur. Statistique de l', Enseignement, Examens, Grades . . . 1886-88. Diagram, 4to.	
Justice criminelle. Compte Général de l'administration pendant 1887. 4to.	
Ministère de l'Agriculture. Bulletin. IX^e^ année, 1890. Nos. 7 (contains: "Récolte des céréales en 1889") and 8	The Ministry of Agriculture
Ministère des Finances. Bulletin de Statistique et de Législation comparée. Dec., 1890, Jan.—Feb., 1891	The Ministry of Finance
Ministère des Travaux Publics. Bulletin du, Statistique et Législation comparée. Oct.—Dec., 1890	The Ministry of Public Works

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(a) **Foreign Countries**—*Contd.*	
France—*Contd.*	
Soie. Essai sur les propriétés physiques de la, 1887...	J. S. Keltie, Esq.
Soies des vers sauvages de l'Inde, et leur emploi dans l'Industrie. 1887. La 8vo	
L'Economiste Français. (Current weekly numbers)	The Editor
Le Monde Economique. (Current weekly numbers)	,,
Polybiblion. Revue Bibliographique Universelle—	
Partie Littéraire. Dec., 1890. Jan.—Feb., 1891....	,,
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Le Rentier. Journal Financier Politique. (Current numbers)	,,
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Revue d'Economie Politique—	
Nov.—Dec., 1890. Commerce Français dans le Levant au temps de Colbert: *H. Pigeonneau.* Une polémique avec Karl Marx: *L. Bretano.*	The Publishers
Jan., 1891. Inspection du Travail en France en 1889: *V. Mataja.* Théorie mathématique de l'offre et de la demande et le coût de production: *E. Y. Edgeworth.* Politique des États Unis relative à l'emigration: *R. M. Smith.* L'Impôt sur le Revenu: *D. Davidson.* Accidents du Travail en Suisse: *R. Jay*	
Feb. Situation douanière en Europe: *A. Peez.* La participation aux bénéfices: *G. Schmoller.* Prorogation du monopole de la Banque de France: *E. F. de Flaix.* Le libre-arbitre et la liberté individuelle: *E. Villey*	
Annales de l'École Libre des Sciences Politiques. Jan., 1891. (Selection from contents.) Place des sciences economiques et sociales dans l'enseignement supérieur: *E. Boutmy*	The Institution
Journal de la Société de Statistique de Paris—	
Dec., 1890. La dépopulation de la France. La clientèle des caisses d'epargne: *T. Loua*	The Society
Jan., 1891. Situation générale de l'Algérie. Les rivières du sud: *C. Cerisier.* Salaires des ouvriers des mines de houille depuis 1860	
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March. Le Bureau du Travail en Angleterre: *A. Liégeard.* Les Finances locales de 1878-90: *F. Hennequin.* Le Tabac et la dépopulation de la France: *E. Decroix*	
Germany—	
Monatshefte zur Statistik des Deutschen Reichs. Nov.—Dec., 1890, Jan. 1891	The Imperial Statistical Bureau
Statistik des Deutschen Reichs. Neue Folge—	
Band xlviii. Waarenverkehr des deutschen Zollgebiets mit den Auslande, 1889. Theil 2, 3 (1 vol.)	
Band l. Der Verkehr auf den deutschen Wasserstrassen, 1889	

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Germany—*Contd.*	
Prussia—	
Preussische Statistik. Band cix. Die Heilanstalten während 1886-88. Band cx. Ergebnisse der Ermittelung des Ernteertrages für 1889. Maps	The Royal Prussian Statistical Bureau
Zeitschrift des K. Preussischen Statistischen Bureaus. Jahrgang 1890. Vierteljahrsheft 3	
ANHALT. Statistisches Jahrbuch für das Herzogthum Anhalt. Heft 1, 1888. 4to.	J. S. Keltie, Esq.
Berlin—	
Eheschliessungen, Geburten, Sterbefälle und Witterung. (Current weekly numbers)	The Statistical Bureau of Berlin
Die Lohn-Verhältnisse in Berlin im September, 1889	
Statistisches Jahrbuch der Stadt Berlin. Statistik des Jahres 1888	
Tabellen über die Bewegung der Bevölkerung der Stadt Berlin im Jahre 1889	
FRANKFORT. Beiträge zur Statistik der Stadt—. Band v, Heft 5. 4to., 1890	The Statistical Bureau of Frankfort
Verein Deutschen Eisenbahn-Verwaltungen. Beiträge zur Theorie der Dienstunfähigkeits-und Sterbens-Statistik. Heft 6. Jahr 1889. 8vo.	The Association
Guatemala—	
Informe de la Direccion de Estadistica, 1888-89. 2 vols., 8vo.	J. S. Keltie, Esq.
Memoria de la Secretaria de Fomento. 1889. 8vo.	
Hawaiian Islands—	
Chief Justice, Biennial Report of the, for 1888-89.	"
Customs, Annual Report of the Collector-General of, for 1889	
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Health, Biennial Report of the President of the Board of, for 1888-90	
Italy—	
Annali di Agricoltura, 1890—	
178. Atti della Commisione Consultiva per la Fillossera. Map	The Director-General of Agriculture
180. Zootecnia. Produzione bovina, ovina e suina nell' anno 1889	
Bollettino di Legislazione e Statistica Doganale e Commerciale. Nov.—Dec., 1890. Jan.—Feb., 1891	The Director-General, Statistical Department of the State
Bollettino mensile delle situazioni dei Conti degli Istituti d'Emissione. Oct.—Dec., 1890; Jan., 1891	
Bollettino del Ministero degli Affari Esteri. Vol. ii, fasc. 5, 6. 1890	
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Dell' analisi degli Alcool, 1891	
Istruzione Elementare. Statistica per 1886-87, e Notizie sommarie per 1887-88	The Director-General, Statistical Department of the State
Istruzione Secondaria e Superiore. Statistica per 1887-88, e Notizie sommarie per 1888-89	
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Statistica del Commercio speciale di Importazione e di Esportazione. Nov. e Dec., 1890; Jan., 1891	
La Cooperazione Rurale. Anno vi. No. 12. 1890. 8vo.	The Editor
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Giornale degli Economisti—	
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Jan., 1891. La Tariffa McKinley: *F. W. Taussig.* Finanza e politica doganale. Delle regioni d' Italia in ordine alla loro ricchezza ed al lors carico tributario: *M. Pantaleoni*	
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Boletin Semestral de Estadistica de la Republica. Año 1888, No. 2. Fol.	J. S. Keltie, Esq.
Datos mercantiles. 8vo. 1889	
Noticias de las amonedaciones e introducciones de metales preciosos, 1887-88. Fol.	
Noticia de la amonedacion practicada en las Casas de Moneda, 1890-91. Sheets	The Statistical Bureau
Netherlands—	
Statistiek der Geboorten en der Sterfte, naar den Leeftigd ende Oorzaken van den Dood in Nederland. July—Sept., 1890	The Department of the Interior
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Paraguay. Revue du Paraguay. Nos. 30—32. 1890	The General Statistical Bureau
Roumania. Tablou General indicand Comerciul Romaniei cu Terile Straine in 1884-1885. 2 vols., la. 8vo.	C. M. Kennedy, Esq., C.B.

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Commerce Extérieur de la Russie par les frontières d'Europe et d'Asie en 1889. 4to Commerce Extérieur de la Russie par la frontière d'Europe. Sept.—Nov., 1890	The Statistical Bureau, Customs Department
Population. Mouvement de la, dans la Russie d'Europe en 1886. 8vo.	The Central Statistical Committee
Prices of Rye and Oats in European Russia in Nov. and Dec., 1890; Jan., 1891. Diagram-maps in sheets	The Department of Assessed Taxes
Journal of the Ministry of Finance. (Current weekly numbers.) (In Russian.) 1891 Règlement définitif du Budget de l'Empire pour l'Exercice, 1889. Rapport par le Contrôleur de l'Empire	His Excellency A. Vesselovsky
L'Economiste Russe, Journal de Statistique Financière, Commerciale, Industrielle, et Agricole. (Current numbers)	The Editor
Servia. Jubilé cinquantenaire de l'activité littéraire de Vladimir Yakchitch . . . le 30 Mai, 1889, à Belgrade.	M. Yakchitch
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Comercio de Cabotaje. Estadistica general del, en 1889 Comercio Exterior de España. Estadistica general del, en 1889	The Director-General of Indirect Taxation
Memorias Comerciales y Suplemento. No. 192, 1891	The Board of Customs
La Riforma Arancelaria y los Tratados de Comercio. Tomos—i y ii, Informacion escrita de la Comision. iii y iv, Informacion oral y datos estadisticos. v, Memorias diplomáticas y Consulares. vi, Actas y dictamenes. 5 vols. 8vo, 1890-91	The Chancellor of the Exchequer, Madrid
Justicia. Estadistica de la administracion de, en lo Civil durante 1888. Fol. Minera. Comision ejecutiva de Estadistica, Datos Estadisticos, 1887-88. Maps and diagrams, fol. Obras Publicas. Memoria sobre el estado de los Ferrocarriles, 1886-88. 2 vols, maps, 4to. Sanidad. Boletin de, correspondiente al mes de Enero-Diciembre, 1889. 12 parts, 8vo.	J. S. Keltie, Esq.
Sociedad Geográfica de Madrid. Boletin. Tomo xxix, Nos. 5 and 6. 1890	The Society
Sweden and Norway—	
Sweden. *Bidrag till Sveriges Officiela Statistik*—	
G. Fångvården, 1889. (Prisons and Prisoners) L. Statens Jernvägstrafik, 1889. (State Railways) M. Postverket, 1889. (Postal) N. Jordbruk och boskapsskötsel, 1890. (Agriculture) Q. Statens Domäner, 1889 (Forests) S. Allmänna Arbeten, 1889. (Public Works)	The Central Statistical Bureau, Stockholm

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117. Tabeller vedkommende Skiftevœsenet, 1887. (Bankruptcies)	
118. Tabeller vedkommende Norges Handel, 1889. (Trade)	
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121. Beretning om Skolevœsenets Tilstand, 1888. (Education)	
Annuaire Statistique de la Norvège, x$^{\text{e}}$ année, 1890	
Switzerland—	
Handelsstatistik Jahresbericht und Werthtabelle, 1889. La. 8vo	J. S. Keltie, Esq.
Journal de Statistique Suisse. 1891. 1. Quartal-Heft. 4to.	The Federal Statistical Bureau
United States—	
Agriculture. Monthly Reports upon Crops, &c. Dec., 1890. Jan. and Feb., 1891	The Secretary of Agriculture
Agriculture. Report of the Secretary of. 1890	
Census, Report of the Superintendent of, for the six months ending 31st Dec., 1890	R. P. Porter, Esq., Superintendent of Census
Census [1890] Bulletins. Nos. 16. Population by States and Territories. 17. Education. 18. Statistics of Churches. 19. Vital Statistics of Jews. 20. Anthracite Coal. 21. Population of New Hampshire. 22. Distilled Spirits consumed in Arts, Manufactures, and Medicine. 23. Areas of States and Counties. 24. Population of Massachusetts. 25. Statistics of Indians. 26. Maryland Coal. 27. Alabama Coal. 28. Transportation; Freight Traffic on the great Lakes. 29. Changes in floating Equipment on the great Lakes since 1886. 30. Alaska; Statistics of Population. 31. Convicts in Penitentiaries. 32. Distribution of Population and mean annual Rainfall. 33. Distribution of Population and mean annual Temperature. 34. Centre of Population of the States. 35. Agriculture; Irrigation in Arizona. 4to	
Comptroller of the Currency. Annual Report of the. 1st Dec., 1890. 2 vols.	The Comptroller of the Currency
Education. Circulars of Information of the Bureau of, No. 3, 1889. Education in Alabama, 1702-1889	The Bureau of Education
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Foreign Commerce, Annual Report on, for 1889-90	The Bureau of Statistics

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Index-Catalogue of Library of Surgeon-General's Office, U.S. Army. Vol. xi. Phaedronus—Régent. 1890	The Surgeon-General
Imports and Exports, Summary Statement of. Oct.—Dec., 1890	The Bureau of Statistics, Treasury Department
Imports, Exports, Immigration, and Navigation, Quarterly Report for the three months ending 30th June, 1890. [No. 4. 1889-90]	
Mint, Annual Report of the Director, for the year ended 30th June, 1890	The Director of the Mint
Marine Hospital Service, Annual Report of the Supervising Surgeon-General, for the fiscal year 1890.	The Surgeon - General, Washington
Naval Observatory, Report of the Superintendent for 1890. 8vo.	The Superintendent
Navy, Annual Report of the Secretary of, for 1889	J. S. Keltie, Esq.
Surgeon-General of the Army, Report of, for the fiscal year 1889	The Surgeon-General
Connecticut—	
State Board of Health. Monthly Bulletin. Nov., Dec., 1890; Jan., 1891	The Board of Health
Report of the Board of Education, 1890	J. S. Keltie, Esq.
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Census of 1885. Vol. i. Population and Social Statistics. Part 1. 8vo.	"
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Bulletin. Nos. 7—10. Maps. 8vo. 1889-90	The State Museum
Memoirs. Vol. i. No. 1. Plates. 4to. 1889	
WASHINGTON TERRITORY. Report of the Governor, 1889. Map	J. S. Keltie, Esq.
WYOMING. Report of the Governor, 1889. Map	
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Commission Pénitentiaire Internationale. Bulletin. Nos. 1—22, 24—26, et 28. 1880-85. 8vo.	Dr. Guillaume, Bern
Institut International de Statistique. Bulletin. Tome iv. 2^e^ et dernière livraison. Année 1889. Diagrams	The Director-General of Statistics, Rome
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,, Record, The	,,	,,
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PERIODICAL RETURNS.

REGISTRATION OF THE UNITED KINGDOM.

No. I.—ENGLAND AND WALES.

MARRIAGES—To 30th September, 1890.

BIRTHS and DEATHS—To 31st December, 1890.

A.—*Serial Table of* Marriages, Births, *and* Deaths, *returned in the Years* 1890-84, *and in the* Quarters *of those Years.*

Calendar Years, 1890-84:—*Numbers.*

Years.........	'90.	'89.	'88.	'87.	'86.	'85.	'84.
Marriages No.	—	213,865	203,821	200,518	196,071	197,745	204,301
Births........ ,,	872,515	885,944	879,868	886,331	903,760	894,270	906,750
Deaths .... ,,	564,248	518,353	510,971	530,758	537,276	522,750	530,828

Quarters *of each Calendar Year,* 1890-84.

(I.) Marriages:—*Numbers.*

Qrs. ended last day of	'90.	'89.	'88.	'87.	'86.	'85.	'84.
March........ No.	40,812	41,006	40,276	38,836	39,202	39,111	41,614
June .... ,,	59,044	55,741	51,684	52,637	50,325	52,054	53,752
September ,,	57,042	53,820	51,603	49,746	48,565	49,476	50,336
December ,,	—	63,298	60,258	59,299	57,979	57,104	58,599

(II.) Births:—*Numbers.*

Qrs. ended last day of	'90.	'89.	'88.	'87.	'86.	'85.	'84.
March........ No.	226,327	220,296	223,766	219,162	230,330	231,955	224,689
June .... ,,	220,178	227,641	224,112	226,338	231,087	222,142	231,135
September ,,	220,304	220,341	214,651	222,835	224,332	218,558	225,985
December ,,	205,706	217,666	217,339	217,996	218,011	221,615	224,941

(III.) Deaths:—*Numbers.*

Qrs. ended last day of	'90.	'89.	'88.	'87.	'86.	'85.	'84.
March........ No.	165,979	139,344	149,976	143,123	156,653	147,721	132,150
June .... ,,	128,523	124,434	124,918	128,488	125,359	132,310	127,904
September ,,	122,320	122,362	107,881	125,232	125,366	114,308	134,882
December ,,	147,426	132,213	128,196	133,915	129,898	128,381	135,892

Annual Rates of Marriages, Births, *and* Deaths, *per* 1,000 Persons Living *in the Years* 1890-84, *and in the* Quarters *of those Years.*

Calendar Years, 1890-84:—*General Ratios.*

Years	'90.	Mean '80-89.	'89.	'88.	'87.	'86.	'85.	'84.
Estmtd. Popln. of England *in thousands* in middle of each Year	29,408	—	29,016,	28,629,	28,247,	27,871,	27,499,	27,132,
Persons Married	—	14·8	14·7	14·2	14·2	14·1	14·4	15·0
Births	29·7	32·6	30·5	30·6	31·4	32·4	32·5	33·3
Deaths	19·2	19·1	17·9	17·8	18·8	19·3	19·0	19·5

Quarters *of each Calendar Year,* 1890-84.

(I.) Persons Married:—*Ratio per* 1,000.

Qrs. ended last day of	'90.	Mean '80-89	'89.	'88.	'87.	'86.	'85.	'84.
March	11·3	12·0	11·5	11·3	11·2	11·4	11·5	12·3
June	16·1	15·1	15·4	14·5	14·9	14·5	15·2	15·9
September	15·4	14·6	14·7	14·3	14·0	13·8	14·3	14·7
December	—	17·3	17·3	16·7	16·7	16·5	16·5	17·1

(II.) Births:—*Ratio per* 1,000.

Qrs. ended last day of	'90.	Mean '80-89.	'89.	88.	'87.	'86.	'85.	'84.
March	31·2	33·4	30·8	31·4	31·5	33·5	34·2	33·2
June	30·0	33·5	31·5	31·4	32·1	33·3	32·4	34·2
September	29·7	31·9	30·1	29·7	31·3	31·9	31·5	33·0
December	27·8	31·6	29·8	30·1	30·6	31·0	32·0	32·9

(III.) Deaths:—*Ratio per* 1,000.

Qrs. ended last day of	'90.	Mean '80-89.	'89.	'88.	'87.	'86.	'85.	'84.
March	22·9	21·3	19·5	21·0	20·5	22·8	21·8	19·5
June	17·5	18·6	17·2	17·5	18·2	18·0	19·3	18·9
September	16·5	17·5	16·7	15·0	17·6	17·8	16·5	19·7
December	19·9	19·9	18·1	17·8	18·8	18·5	18·5	19·9

B.—*Comparative Table of* CONSOLS, PROVISIONS, COAL *and* PAUPERISM *in each* QUARTER *of* 1888-89-90.

Quarters ending	Average Prices of						Pauperism.	
	2¾*l.* per Cent. CONSOLS (for Money) per 100*l.* Stock.	DISCOUNT charged by the Bank of England.	WHEAT per Quarter in England and Wales.	MEAT per Pound at the Metropolitan Meat Market (by the Carcase), with the *Mean* Prices.		COAL (Seaborne) in the London Market per Ton.	Quarterly Average of the Number of Paupers Relieved on the *Last Day* of each Week.	
				Beef.	Mutton.		In-door.	Out-door.
1888	£ *s.* *d.*	£	*s.* *d.*	*d.* *d.* *d.*	*d.* *d.* *d.*	*s.* *d.*		
Mar. 31	—	2·84	30 7	3—6⅛ 4⅝	3¼—6⅞ 5⅛	15 1	199,301	581,233
June 30	—	2·44	31 2	3¼—6¼ $4\frac{3}{1}$	3¾—7¾ 5¾	14 6	180,641	550,628
Sept. 30	—	2·98	34 4	3⅝—6⅝ 5⅛	4⅛—8¼ 6¼	14 -	171,891	527,001
Dec. 31	—	4·96	31 4	3¼—6½ 4⅞	3⅝—8 5⅞	16 1	187,006	531,918
1889								
Mar. 31	98 10 -	3·41	29 11	3¼—6⅛ 4¾	3½—7⅞ 5¾	16 4	197,363	558,527
June 30	98 11 6	2·59	29 3	3½—7¼ 5⅜	4⅞—8⅞ 6⅞	14 6	178,019	529,366
Sept. 30	97 19 2	3·20	30 -	3½—7¾ 5⅝	5⅝—9⅝ 7⅝	15 9	170,072	512,156
Dec. 31	97 2 2	5·02	29 11	3½—7½ 5½	6⅛—9⅞ 8	19 5	184,399	512,707
1890								
Mar. 31	97 4 9	5·34	29 10	3½—7½ 5½	6⅞—10⅜ 8⅝	19 4	192,316	533,577
June 30	97 15 9	3·19	32 8	3½—7⅛ 5⅜	6⅜—9¼ 7⅞	17 9	172,686	506,303
Sept. 30	96 - -	4·30	34 4	3½—7⅜ 5½	6⅞—9⅛ 8	18 8	165,091	493,107
Dec. 31	94 19 4	5·29	31 10	3½—7½ 5½	7—9⅛ 8½	19 3	178,858	492,131

C.—*Special Average Death-Rate Table:*—ANNUAL RATE *of* MORTALITY *per* 1,000 *in* TOWN *and* COUNTRY DISTRICTS *of* ENGLAND *in each Quarter of the Years* 1890-88.

	Area in Statute Acres.	Population Estimated in the middle of 1890.	Quarters ending	Annual Rate of Mortality per 1,000 in each Quarter of the Years			
				1890.	Mean '81-89.	1889.	1888.
TOWN DISTRICTS. All Registration Sub-Districts three-fourths of the population of which, as enumerated in 1881, resided within the boundaries of Urban Sanitary Districts existing in 1886	3,678,263	19,043,378	March ..	23·5	21·8	19·9	21·3
			June	18·1	19·1	17·7	17·7
			Sept.	17·8	18·5	17·9	15·7
			Dec.	21·2	20·0	19·0	19·0
			Year	20·1	19·8	18·6	18·4
COUNTRY DISTRICTS. All the remaining Registration Sub-Districts of England and Wales—not coming within the above definition of Town Districts	33,561,088	10,364,271	Year	17·5	17·3	16·5	16·7
			March ..	21·8	20·0	18·6	20·6
			June	16·6	17·6	16·3	17·2
			Sept.	14·2	14·9	14·7	13·6
			Dec.	17·5	16·8	16·3	15·6

D.—*Special Town Table:*—POPULATION; BIRTH-RATE *and* DEATH-RATE *in each Quarter of* 1890, *in* TWENTY-EIGHT *Large Towns.*

Cities and Boroughs.	Estimated Population in the Middle of the Year 1890.	Annual Rate to 1,000 Living during the Thirteen Weeks ending							
		29th March. (1st Quarter.)		28th June. (2nd Quarter.)		27th September. (3rd Quarter.)		3rd January (4th Quarter.)	
		Births.	Deaths.	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.
Twenty-eight towns	9,715,559	32·1	24·7	30·0	19·0	29·9	19·2	28·0	22·1
London*	4,421,661	31·6	23·6	28·7	17·3	29·0	18·2	27·2	21·3
Brighton	123,659	26·0	20·2	22·8	15·5	22·7	16·7	21·4	18·6
Portsmouth	142,952	36·9	23·6	32·0	16·6	35·0	17·5	30·6	20·6
Norwich	95,352	37·6	23·1	33·6	19·2	31·0	18·6	30·0	23·2
Plymouth	78,780	34·3	25·9	28·6	19·6	32·6	20·7	29·4	23·4
Bristol	232,248	29·5	27·0	29·0	15·8	28·1	14·2	26·0	19·9
Wolverhampton	83,406	33·1	27·4	33·5	18·6	33·2	19·8	29·5	21·6
Birmingham	461,865	32·2	25·1	30·5	18·2	29·8	19·4	28·1	20·3
Leicester	154,344	32·4	19·7	31·9	14·9	30·8	18·7	27·3	18·4
Nottingham	244,909	26·6	19·4	26·1	14·5	24·6	14·1	22·4	17·8
Derby	100,871	28·5	20·7	29·3	21·6	25·3	15·4	24·7	16·5
Birkenhead	105,049	32·4	19·1	31·9	16·4	32·3	18·8	29·3	24·1
Liverpool	613,463	30·7	26·4	29·1	21·5	29·2	22·2	26·5	24·1
Bolton	115,846	34·4	28·8	32·0	26·9	31·5	21·5	28·2	25·9
Manchester	379,437	37·5	33·9	36·5	29·8	34·0	27·2	32·1	31·4
Salford	242,509	30·5	24·2	29·6	21·3	27·8	20·9	27·4	23·1
Oldham	146,716	28·0	24·5	26·4	19·8	27·7	16·8	25·8	23·6
Blackburn	123,553	35·5	28·5	32·9	21·0	32·0	18·8	29·9	25·3
Preston	105,163	39·5	29·6	37·9	21·2	35·0	27·0	32·3	31·7
Huddersfield	94,253	24·2	22·4	23·4	16·5	21·6	17·1	21·4	19·8
Halifax	82,034	30·7	25·3	27·3	22·0	28·1	17·2	25·7	25·2
Bradford	240,515	27·2	25·3	26·4	19·4	25·5	16·5	23·4	20·4
Leeds	363,799	33·9	27·8	34·1	21·1	33·9	19·8	31·7	21·8
Sheffield	332,837	33·2	28·4	30·6	24·8	32·7	22·3	32·3	24·3
Hull	213,833	31·9	23·5	30·7	17·8	31·4	17·9	31·1	17·9
Sunderland	136,506	37·3	24·0	35·1	21·9	36·2	21·7	33·8	23·2
Newcastle	162,987	41·2	27·1	40·2	26·3	38·6	25·7	39·3	24·5
Cardiff	117,012	40·5	21·0	38·5	17·0	39·4	20·9	36·5	23·8
Edinburgh	271,135	27·2	25·4	27·9	19·3	25·6	16·6	24·8	18·8
Glasgow	530,208	36·5	28·5	38·1	27·2	36·2	21·6	34·5	23·8
Dublin	353,082	28·7	36·2	28·7	23·7	26·7	20·2	23·6	25·4

* For the purposes of this table, London includes the Strand Union workhouse at Edmonton, the Holborn Union workhouse at Mitcham, and the metropolitan hospitals asylums situated outside Registration London.

—*Divisional Table:*—MARRIAGES *in the Year ending 30th September; and* BIRTHS *and* DEATHS *in the Year ending 31st December,* 1890, *as Registered Quarterly.*

1	2	3	4	5	6	7
			MARRIAGES in Quarters ending			
DIVISIONS. (England and Wales.)	AREA* in Statute Acres.	Enumerated POPULATION, 1881.	31st December, 1889.	31st March, 1890.	30th June, 1890.	30th September, 1890.
		No.	No.	No.	No.	No.
NGLD. & WALES....*Totals*	37,319,221	25,974,439	63,276	40,812	59,044	57,042
I. London	75,362	3,816,483	10,082	6,495	9,646	10.358
II. South-Eastern	3,994,431	2,487,076	5,751	3,205	4,927	4,740
II. South Midland	3,201,325	1,596,259	3,602	1,758	3,069	3,080
IV. Eastern	3,211,441	1,343,524	3,446	1,675	2,379	2,384
V. South-Western	4,981,170	1,859,198	3,846	2,665	3,572	3,149
VI. West Midland	3,945,460	3,029.319	7,485	4.392	6,866	6,370
II. North Midland	3,535,445	1,637,865	3,826	2,342	3,931	3,180
II. North-Western	1,998,914	4,108,184	9,580	7,454	9,797	10.243
X. Yorkshire	3,702,384	2,894,759	7,465	4,947	7,005	6,626
X. Northern	3,547,947	1,624,213	3,982	3,227	4,206	3,581
XI. Monmthsh. & Wales	5,125,342	1,577,559	4,211	2,652	3,646	3,331

8	9	10	11	12	13	14	15	16
	BIRTHS in each Quarter of 1890 ending				DEATHS in each Quarter of 1890 ending			
DIVISIONS. (England and Wales.)	31st March.	30th June.	30th September.	31st December.	31st March.	30th June.	30th September.	31st December.
	No.	No.	No.	No.	No.	No.	No.	No.
GLD. & WALES....*Totals*	226,327	220,178	220,304	205,706	165,979	128,523	122,320	147,426
I. London	34,792	31,632	31,988	32,268	25,923	19,017	19,714	24,900
I. South-Eastern	19,788	18,603	19,163	17,713	13,207	10,216	9,588	11,855
I. South Midland	13,725	13,210	13,128	12,006	9,511	7,038	6,590	7,943
V. Eastern	12,456	11,729	11,563	10,505	7,817	6,205	5,955	7,374
V. South-Western	13,399	12,972	13,161	11,795	10,755	7,882	6,809	8,742
I. West Midland	25,716	25,683	24,985	23,108	19,336	13,760	12.963	15,669
I. North Midland	14,057	14,047	13,436	12,608	9,533	7,717	7,343	8,183
I. North-Western	38,145	37.247	37,274	34,292	29,950	23,833	23,442	28.219
X. Yorkshire	24,597	21,472	24,909	23,640	18,785	15,944	14,315	16,839
X. Northern	15,667	16,270	16,476	15,234	10,227	8,952	8,616	9,157
I. Monmthsh. & Wales	13,985	14,313	14,221	12,537	10,935	7,959	6.985	8,545

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* These are revised figures, and will be found to differ somewhat from those first lished.

F.—*General Meteorological Table,*

[Abstracted from the particulars supplied to the

1890. Months.	Temperature of										Elastic Force of Vapour.		Weight of Vapour in a Cubic Foot of Air.	
	Air.			Evaporation.		Dew Point.		Air—Daily Range.		Water of the Thames				
	Mean.	Diff. from Average of 119 Years.	Diff. from Average of 49 Years.	Mean.	Diff. from Average of 49 Years	Mean.	Diff. from Average of 49 Years.	Mean	Diff. from Average of 49 Years		Mean.	Diff. from Average of 49 Years.	Mean.	Diff. from Average of 49 Years.
	°	°	°	°	°	°	°	°	°		In.	In.	Grs.	Gr.
Jan.	43·4	+6·8	+ 5·1	41·8	+4·9	39·9	+5·1	10·3	+0·8	...	·246	+·046	2·8	+0·4
Feb.	37·5	−1·3	− 1·9	36·1	−1·6	34·2	−1·0	10·1	−0·9	...	·197	−·010	2·3	−0·1
Mar.	43·2	+2·1	+ 1·7	41·1	+2·0	37·1	+1·3	15·7	+1·0	...	·221	+·008	2·6	+0·1
Means	41·4	+2·5	+ 1·6	39·7	+1·8	37·1	+1·8	12·0	+0·3	...	·221	+·015	2·6	+0·1
April	45·6	−0·5	− 1·3	42·1	−1·7	38·1	−2·3	17·2	−1·1	...	·230	−·021	2·7	−0·2
May	54·8	+2·3	+ 2·2	49·6	+0·7	44·7	−0·3	21·9	+1·5	...	·296	−·003	3·3	−0·1
June	58·1	−0·2	− 0·8	54·6	0·0	51·5	+0·8	19·6	−1·4	...	·383	+·012	4·3	+0·1
Means	52·8	+0·5	0·0	18·8	−0·3	44·8	−0·6	19·6	−0·3	...	·303	−·004	3·4	−0·1
July	59·5	−2·2	− 2·7	56·1	−1·6	53·1	−1·0	18·8	−2·2	...	·404	−·013	4·5	−0·3
Aug.	59·3	−1·6	− 2·1	55·9	−1·5	52·8	−1·2	19·5	−0·4	...	·400	−·017	4·5	−0·3
Sept.	59·5	+3·0	+ 2·5	55·3	+1·4	53·2	+2·1	20·8	+2·7	...	·406	+·028	4·6	+0·3
Means	59·4	−0·3	− 0·8	55·8	−0·6	53·0	0·0	19·7	0·0	...	·403	−·001	4·5	−0·1
Oct.	49·3	−0·2	− 0·5	46·8	−1·0	43·9	−1·8	15·7	+1·1	...	·287	−·021	3·3	−0·6
Nov.	43·2	+0·8	− 0·3	41·2	−0·3	38·9	−0·6	12·1	+0·8	...	·237	−·009	2·8	−0·2
Dec.	29·8	−9·3	−10·0	29·1	−9·3	27·0	−9·5	8·1	−1·2	...	·147	−·071	1·7	−1·0
Means	40·8	−2·9	− 3·6	39·0	−3·5	36·6	−4·0	11·8	+0·2	...	·224	−·034	2·6	−0·6

Note.—In reading this table it will be borne in mind that the sign (−) minus signifies

About London the mean daily temperature of the air was generally above its average till 7th October, the mean daily excess being 2°·5; from the 8th to the 29th it was generally below, being particularly so on the 13th, 14th, 26th, 27th, and 28th, when it was 7°·3, 9°·3, 8°, 10°·4, and 16°·1 respectively below; the mean daily deficiency for the twenty-two days ending 29th October, being 3°·6; from 30th October to 2nd November it was above, the mean daily excess being 3°·7; from 3rd November to the 12th it was generally below, the mean daily deficiency being 1°·8; from 13th November to the 24th it was above, being particularly so on the 19th, 20th, 21st, and 23rd, when it was as much as 10°·8, 11°·0, 8°·5, and 10°·9 respectively above, the mean daily excess for the twelve days being 6°·3; and from 25th November to 31st December it was constantly below, the temperature being as much as 21° below on the 22nd of December, and on nearly every day during the thirty-seven days ending 31st December the *for the Year ended* 31*st December*, 1890.

Registrar-General by James Glaisher, Esq., F.R.S., &c.]

Degree of Humidity.		Reading of Barometer.		Weight of a Cubic Foot of Air.		Rain.		Daily Horizontal Movement of the Air.	Reading of Thermometer on Grass.					1890. Months.
									Number of Nights it was			Lowest Reading at Night.	Highest Reading at Night.	
Mean.	Diff. from Average of 49 Years.	Mean.	Diff. from Average of 49 Years	Mean.	Diff. from Average of 49 Years.	Amnt.	Diff. from Average of 75 Years		At or below 30°.	Between 30° and 40°.	Above 40°.			
		In.	In.	Grs.	Grs.	In	In.	Miles.				°	°	
88	+ 1	26·760	− ·001	548	− 6	2 09	+0·23	410	10	16	5	18·4	43·3	January
88	+ 3	30·016	+ ·221	559	+ 6	1·04	−0·53	248	14	13	1	21·0	40·2	Feb.
79	− 2	29·665	− ·085	546	− 4	1·97	+0·43	331	12	18	1	8·6	44·8	March
85	+ 1	29·814	+ ·045	551	− 1	Sum 5·10	Sum +0·13	Mean 330	Sum 36	Sum 47	Sum 7	Lowest 8·6	Highst 44·8	Means
76	− 4	29·644	− ·099	543	0	1·77	+0·03	286	14	13	3	22·6	42·1	April
69	−10	29·666	− ·122	534	− 6	1·34	−0·73	255	4	19	8	26·6	44·9	May
79	+ 4	29·824	+ ·013	533	+ 1	2·54	+0·56	250	1	7	22	28·5	50·8	June
75	− 3	29·711	− ·069	537	− 2	Sum 5·65	Sum +0·14	Mean 264	Sum 19	Sum 39	Sum 33	Lowest 22·6	Highst 50·8	Means
80	+ 5	29·735	− ·059	529	+ 1	4·50	+1·96	281	0	3	28	34·3	55·5	July
79	+ 3	29·715	− ·069	529	0	2·54	+0·18	246	0	4	27	33·2	55·4	August
80	− 1	29·979	+ ·177	534	+ 1	0·65	−1·75	205	0	4	26	31·5	53·0	Sept.
80	+ 2	29·810	+ ·016	531	+ 1	Sum 7·69	Sum +0·39	Mean 244	Sum 0	Sum 11	Sum 81	Lowest 31·5	Highst 55·5	Means
82	− 7	29·921	+ ·209	544	+ 4	1·19	−1·57	282	3	23	5	20·5	48·5	October
85	− 5	29·701	− ·040	547	− 1	1·48	−0·88	315	10	13	7	18·1	49·8	Nov.
89	− 1	29·851	+ ·059	565	+13	0·77	−1·20	202	27	4	0	13·4	34·7	Dec.
85	− 4	29·824	+ ·076	552	+ 5	Sum 3·44	Sum −3·65	Mean 266	Sum 40	Sum 40	Sum 12	Lowest 13·4	Highst 49·8	Means

elow the average, and that the sign (+) plus signifies above the average.

temperature was from 6° to 18° below its average; the mean daily deficiency for these thirty-seven days was 11°·5.

The mean temperature of the air for December was 29°·8, being 9°·3 and 10° below the average of one hundred and nineteen and forty-nine years respectively; it was 7°·8, 11°, and 8°·3 lower than in 1889, 1888, and 1887 respectively, and there was only one instance of as low or lower temperature back to the year 1771, viz., 1788, when it was 29°, and there were only seven other instances of as low or lower temperature in any month in the one hundred and nineteen years, viz.:—January, 1771, it was 29°·9; January, 1776, it was 27°; January, 1780, it was 28°·6; January, 1784, it was 29°·2; January, 1795, it was 23°·9; January, 1814, it was 26°·9; January, 1838, it was 28°·9.

No. II.—SCOTLAND.

BIRTHS, DEATHS, AND MARRIAGES, IN THE YEAR ENDED 31ST DECEMBER, 1890.

I.—*Serial Table:—Number of* BIRTHS, DEATHS, *and* MARRIAGES *in Scotland, and their Proportion to the Population estimated to the Middle of each Year, during each Quarter of the Years* 1890-86 *inclusive.*

	1890.		1889.		1888.		1887.		1886.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
1st Quarter—										
Births	30,124	2·96	29,830	2·97	30,481	3·04	30,589	3·11	31,880	3·27
Deaths	23,316	2·29	19,609	1·95	20,824	2·08	20,036	2·04	20,516	2·11
Marriages ..	6,687	0·66	6,318	0·63	5,942	0·59	6,249	0·63	6,229	0·64
Mean Temperature	40°·1		38°·6		36°·5		38°·6		35°·3	
2nd Quarter—										
Births	31,789	3·09	32,294	3·18	32,088	3·20	32,698	3·29	33,381	3·39
Deaths	19,607	1·91	18,213	1·79	18,048	1·80	18,685	1·88	18,555	1·88
Marriages ..	7,079	0·69	6,546	0·64	6,318	0·63	6,083	0·61	6,091	0·62
Mean Temperature	49°·5		51°·0		47°·5		49°·6		47°·7	
3rd Quarter—										
Births	30,300	2·92	30,277	2·95	30,037	2·96	30,602	3·04	31,603	3·17
Deaths	16,668	1·60	16,787	1·63	14,919	1·47	16,885	1·68	16,263	1·63
Marriages ..	6,480	0·62	6,257	0·61	5,892	0·58	5,643	0·56	5,612	0·56
Mean Temperature	55°·4		54°·6		53°·3		55°·7		54°·9	
4th Quarter—										
Births	29,317	2·82	30,369	2·96	30,627	3·02	30,486	3·03	31,063	3·12
Deaths	19,387	1·47	18,594	1·81	17.371	1·71	18,894	1·88	18,288	1·84
Marriages ..	7,195	0·69	7,197	0·70	7,129	0·70	6,876	0·68	6,537	0·66
Mean Temperature	41°·5		42°·6		43°·4		39°·9		41°·8	
Year—										
Population.	4,120,547		4,077,070		4.034,156		3,991,499		3,949,393	
Births	121.530	2·94	122,770	3·01	123,233	3·05	124,375	3·12	127,927	3·24
Deaths	78,978	1·91	73,203	1·80	71,162	1·76	74.500	1·87	73,622	1·86
Marriages ..	27,441	0·67	26,318	0·65	25,281	0·63	24,851	0·62	24,469	0·62

.—Special Average Table:—Number of Births, Deaths, and Marriages in Scotland and in the Town and Country Districts for each Quarter of the Year ending 31*st December*, **1890**, *and their Proportion to the Population; also the Number of Illegitimate Births, and their Proportion to the Total Births.*

Registration Groups of Districts.	Total Births.			Illegitimate Births.			Deaths.			Marriages.		
	Number	Per Cent.	Ratio. One in every	Number.	Per Cent	Ratio. One in every	Number.	Per Cent.	Ratio. One in every	Number	Per Cent.	Ratio. One in every
t Quarter—												
SCOTLAND	30,124	2·96	34	2,462	8·2	12·2	23,316	2·29	44	6,687	0·66	152
Principal towns	12,635	3·12	32	956	7·6	13·2	10,197	2·52	40	3,224	0·80	126
Large „	3,791	3·30	30	264	7·0	14·4	2,696	2·35	43	893	0·78	129
Small „	6,332	2·94	34	481	7·6	13·2	4,652	2·16	46	1,290	0·60	167
Mainland rural	6,712	2·69	37	734	10·9	9·1	5,171	2·07	48	1,120	0·45	223
Insular „	654	2·06	49	27	4·1	24·2	600	1·89	53	160	0·50	199
d Quarter—												
SCOTLAND	31,789	3·09	32	2,285	7·2	13·8	19,607	1·91	52	7,079	0·69	145
Principal towns	13,481	3·29	30	992	7·4	13·6	9,119	2·23	45	3,474	0·85	118
Large „	4,018	3·46	29	207	5·2	19·4	2,286	1·97	51	816	0·70	142
Small „	6,689	3·08	33	470	7·0	14·2	3,672	1·69	59	1,328	0·61	163
Mainland rural	6,959	2·76	36	582	8·5	11·9	4,064	1·61	62	1,381	0·55	183
Insular „	642	2·00	50	34	5·3	19·0	466	1·45	69	80	0·25	402
d Quarter—												
SCOTLAND	30,300	2·92	34	2,267	7·5	13·4	16,668	1·60	62	6,480	0·62	160
Principal towns	12,495	3·02	33	920	7·4	13·5	7,456	1·80	55	3,410	0·82	121
Large „	3,767	3·21	31	222	5·9	17·0	1,935	1·65	60	826	0·70	143
Small „	6,430	2·93	34	451	7·0	14·3	3,345	1·52	66	1,201	0·55	183
Mainland rural	6,861	2·69	37	632	9·2	10·9	3,514	1·38	73	1,005	0·39	254
Insular „	747	2·30	44	42	5·6	17·8	418	1·29	78	38	0·12	855
h Quarter—												
SCOTLAND	29,317	2·82	35	2,153	7·3	13·6	19,387	1·87	54	7,195	0·69	144
Principal towns	12,244	2·96	34	875	7·1	14·0	8,486	2·05	49	3,209	0·78	129
Large „	3,663	3·12	32	203	5·5	18·0	2,516	2·14	47	830	0·71	141
Small „	6,210	2·83	35	431	6·9	14·4	3,987	1·81	55	1,446	0·66	152
Mainland rural	6.431	2·52	40	604	9·4	10·6	3,901	1·53	65	1,575	0·62	162
Insular „	769	2·36	42	40	5·2	19·2	497	1·53	65	135	0·41	243

Population of Scotland.

Population.	Scotland.	Principal Towns.	Large Towns.	Small Towns.	Mainland Rural.	Insular Rural.
Census of 1881	3,735,573	1,409,260	404,302	784,654	1,006,969	130,388
timated to the middle f 1890	4,120,547	1,641,730	465,626	871,955	1,012,664	128,932

III.—*Bastardy Table:—Proportion of* ILLEGITIMATE *in every Hundred* BIRTHS *in the Divisions and Counties of* SCOTLAND, *during each quarter of the Year ending* 31*st December,* 1890; *with the Corresponding Figures for* 1889 *added for Comparison.*

Divisions and Counties.	Per Cent. for the Quarters ending 1890.				Per Cent. for the Quarters ending 1889.			
	31st March.	30th June.	30th Sept.	31st Dec.	31st March.	30th June.	30th Sept.	31st Dec.
SCOTLAND	8·2	7·2	7·5	7·3	8·0	7·6	7·9	7·9
Divisions—								
Northern	8·8	7·5	7·4	6·4	6·3	7·5	7·2	6·7
North-Western........	6·1	6·3	5·7	5·0	7·2	6·9	6·3	5·9
North-Eastern	14·5	11·9	12·5	13·3	13·8	13·1	13·0	12·5
East Midland	8·4	8·2	7·3	7·7	7·9	9·0	8·1	8·1
West Midland	6·2	5·6	5·7	5·5	6·8	5·7	6·7	7·1
South-Western........	6·4	5·8	6·2	5·9	6·5	5·9	6·3	6·5
South-Eastern	7·9	6·8	7·5	7·3	7·7	7·4	7·5	7·6
Southern	16·0	11·3	13·2	12·3	13·9	12·8	14·2	14·3
Counties—								
Shetland	2·3	2·2	2·2	3·6	1·5	7·7	4·9	3·5
Orkney	1·6	7·2	4·8	5·3	7·8	4·0	7·6	6·6
Caithness...............	17·0	10·9	13·1	8·9	8·3	9·8	9·4	9·6
Sutherland	7·8	6·5	4·3	7·6	5·4	6·9	5·5	5·9
Ross and Cromarty	4·9	4·2	4·8	2·7	4·9	6·5	5·1	3·7
Inverness	7·3	8·3	6·6	7·3	9·1	7·2	7·5	8·1
Nairn	18·2	7·8	8·0	6·6	21·2	14·3	10·0	8·2
Elgin	15·2	9·0	12·5	14·4	18·0	12·5	13·5	14·5
Banff	15·2	15·6	14·8	14·1	16·5	14·3	9·1	11·5
Aberdeen...............	14·1	11·8	12·1	13·0	12·6	12·9	13·9	12·8
Kincardine	15·1	9·9	12·4	14·3	12·4	12·9	11·8	10·5
Forfar	10·7	10·0	7·8	9·8	9·0	10·5	9·2	9·7
Perth	9·5	9·0	8·7	7·9	8·7	10·5	9·7	8·3
Fife	5·4	5·1	6·1	5·2	6·0	6·3	5·7	5·6
Kinross	2·3	7·8	12·9	6·2	10·8	1·8	11·1	7·1
Clackmannan	3·8	8·6	4·7	4·0	4·5	7·1	6·7	8·2
Stirling	6·9	5·9	6·2	6·2	7·8	5·6	6·9	8·0
Dumbarton	5·4	4·1	4·4	4·2	9·3	4·9	5·4	5·4
Argyll	7·0	7·5	6·3	5·9	7·8	6·7	8·6	8·5
Bute	3·0	6·6	8·4	6·9	9·1	6·6	5·6	2·8
Renfrew	5·4	4·2	5·4	5·3	5·7	4·5	5·6	5·8
Ayr	7·2	6·5	7·2	6·5	7·4	6·1	6·5	7·6
Lanark	6·4	6·0	6·1	5·8	6·5	6·1	6·4	6·4
Linlithgow	6·6	6·3	7·7	7·2	9·4	6·5	7·1	6·0
Edinburgh	7·8	6·7	7·8	7·3	7·4	7·1	7·4	7·4
Haddington	9·2	8·4	5·6	5·8	7·6	6·4	7·0	8·3
Berwick	10·1	8·6	8·9	9·0	9·1	11·5	8·6	13·8
Peebles	7·9	2·5	2·9	7·8	6·4	9·7	10·1	9·8
Selkirk	8·9	6·1	5·6	6·4	8·3	10·4	7·9	8·3
Roxburgh	14·4	7·4	9·8	9·8	7·9	11·2	11·1	11·3
Dumfries................	18·4	11·0	12·4	12·6	16·2	11·4	12·6	13·0
Kirkcudbright	14·8	10·4	15·3	11·0	13·7	14·1	16·2	16·2
Wigtown................	14·3	14·7	17·0	17·1	17·3	16·1	19·2	18·4

IV.—*Divisional Table:*—MARRIAGES, BIRTHS, *and* DEATHS *Registered in the Year ended 31st December,* 1890.

(Compiled from the Registrar-General's Quarterly Returns.)

1 DIVISIONS. (Scotland)	2 AREA in Statute Acres.	3 POPULATION, 1881. *(Persons.)*	4 Marriages.	5 Births.	6 Deaths.
		No.	No.	No.	No.
SCOTLAND .... *Totals*	19,639,377	3,735,573	27,441	121,530	78,978
I. Northern	2,261,622	123,984	502	2,632	2,093
II. North-Western........	4,739,876	165,856	644	3,929	2,723
III. North-Eastern	2,429,594	418,250	2,492	12,773	7,766
IV. East Midland	2,790,492	602,421	4,005	17,167	12,411
V. West Midland	2,693,176	283,460	1,714	9,050	5,995
VI. South-Western........	1,462,397	1,385,447	12,666	53,227	32,625
VII. South-Eastern	1,192,524	546,658	4,289	17,432	11,626
VIII. Southern	2,069,696	209,497	1,129	5,320	3,739

No. III.—GREAT BRITAIN AND IRELAND.

SUMMARY *of* MARRIAGES, *in the Year ended 30th September,* 1890; *and of* BIRTHS *and* DEATHS, *in the Year ended 31st December,* 1890.

(Compiled from the Quarterly Returns of the respective Registrars-General.)

COUNTRIES.	[000's omitted.]		Marriages.	Per 1,000 of Population.	Births.	Per 1,000 of Population.	Deaths.	Per 1,000 of Population.
	Area in Statute Acres.	Population, 1881. *(Persons.)*						
		No.	No.	Ratio.	No.	Ratio.	No.	Ratio.
England and Wales	37,319,	25,974,	220,196	8·5	872,515	33·5	564,248	21·7
Scotland	19,639,	3,736,	27,443	7·3	121,530	32·5	78,978	21·1
Ireland	20,323,	5,175,	21,073	4·1	105,343	20·4	86,165	16·6
GREAT BRITAIN AND IRELAND	77,281,	34,885,	268,712	7·7	1,099,388	31·5	729,391	20·9

Note.—The numbers against Ireland represent the marriages, births, and deaths that the local registrars have *succeeded* in recording; but how far the registration approximates to absolute completeness, does not at present appear to be known. It will be seen that the Irish ratios of marriages, births, and deaths are much under those of England and Scotland.—ED. *S. J.*

Trade of United Kingdom, 1890-89-88.—*Distribution of* **Exports*** *from United Kingdom, according to their Declared Real Value; and the Declared Real Value (Ex-duty) of* **Imports** *at Port of Entry, and therefore including Freight and Importer's Profit.*

Merchandise (*excluding Gold and Silver*) Imported from, and Exported to, the following Foreign Countries, &c.	[000's omitted.]					
	1890.		1889.		1888.	
	Imports from	*Exports to*	Imports from	*Exports to*	Imports from	*Exports to*
I.—FOREIGN COUNTRIES.	£	£	£	£	£	£
Northern Europe; viz., Russia, Sweden, Norway, Denmark & Iceland, & Heligoland	43,427,	13,260,	47,720,	12,182,	44,540,	10,644,
Central Europe; viz., Germany, Holland, and Belgium	69,368,	37,094,	71,365,	35,234,	68,233,	30,962,
Western Europe; viz., France, Portugal (with Azores, Madeira, &c.), and Spain (with Gibraltar and Canaries)	60,660,	25,169,	60,688,	22,645,	53,133,	21,633,
Southern Europe; viz., Italy, Austrian empire, Greece, Roumania, Bulgaria, & Malta	11,497,	12,577,	10,964,	11,224,	11,256,	9,528,
Levant; viz., Turkey, Asiatic and European (including Cyprus), and Egypt	13,197,	10,157,	13,745,	9,103,	11,337,	7,977,
Northern Africa; viz., Tripoli, Tunis, Algeria and Morocco	2,090,	1,149,	2,003,	968,	1,601,	831,
Western Africa	1,101,	1,610,	1,027,	1,450,	967,	1,148,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Mooria Islands	941,	1,283,	780,	894,	556,	643,
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands	3,308,	2,792,	5,038,	3,443,	5,191,	3,152.
South Sea Islands	51,	200,	59,	132,	82,	94,
China and Japan, including Hong Kong	7,118,	13,231,	8,317,	11,097,	8,950,	12,982
United States of America	97,357,	32,077,	95,340,	30,299,	79,314.	28,896,
Mexico and Central America	1,884,	2,901,	1,661,	2,510,	1,596.	2,205,
Foreign West Indies, Hayti, &c.	320,	3,059,	248,	2,595,	479.	2,344,
South America (Northern), New Granada, Venezuela, and Ecuador	687,	2,264,	603,	2,209,	762,	2,076,
„ (Pacific), Peru, Bolivia, Chili, and Patagonia	4,524,	4,246,	4,546,	3,897,	5,188.	3,455,
„ (Atlantic) Brazil, Uruguay, and Argentine Republic	8,821,	17,909,	7,521,	19,334,	8,292.	15,685,
Whale Fisheries; Grnlnd., Davis' Straits, Southn. Whale Fishery, Falkland Islands, and French Possessions in North America	112,	30,	108,	64,	109.	29,
Total—Foreign Countries	326,463,	181,008,	331,733,	169,280,	301,586,	154,284,
II.—BRITISH POSSESSIONS.						
British India, Ceylon, and Singapore	41,377,	37,450,	44,336,	34,141,	38,717.	35,829,
Austral. Cols.—N. So. W., Victoria & Queensld.	17,182,	16,556,	16,106,	17,089,	16,334,	19,690,
„ „ So. Aus., W. Aus., Tasm., N. Zealand, & Fiji Islands	12,174,	6,438,	10,714,	5,665,	9,626,	5,703,
British North America	12,444,	7,228,	12,184,	8,115,	9,230,	7,555,
„ W. Indies with Btsh. Guiana & Honduras	2,989,	3,834,	3,657,	3,168,	3,608,	3,135,
Cape and Natal	6,096,	9,110,	6,118,	8,947,	5,614,	5,923,
Brt. W. Co. of Af., Ascension and St. Helena	1,076,	871,	915,	794,	840,	762,
Mauritius	265,	320,	422,	298,	276,	254,
Channel Islands	959,	727,	938,	595,	896,	599,
Total—British Possessions	94,562,	82,534,	95,390,	78,812,	85,141,	79,450
General Total £	421,025,	263,542,	427,123,	248,092;	386,727,	233,734

* *i.e.*, British and Irish produce and manufactures.

Trade of United Kingdom, for the Years 1889-85.—*Declared Value of the Total Exports of* **Foreign** *and* **Colonial** *Produce and Manufactures to each Foreign Country and British Possession.*

Merchandise Exported to the following Foreign Countries, &c.	[000's omitted.]				
	1889.	1888.	1887.	1886.	1885.
I.—Foreign Countries.	£	£	£	£	£
Northern Europe; viz., Russia, Sweden, Norway, Denmark, & Iceland, & Heligoland	5,660,	4,849,	4,507,	3,592,	4,001,
Central Europe; viz., Germany, Holland and Belgium	25,735,	24,177,	24,640,	22,566,	23,685,
Western Europe; viz., France, Portugal (with Azores, Madeira, &c.), and Spain (with Gibraltar and Canaries)	8,879,	10,508,	8,034,	7,914,	9,266,
Southern Europe; viz., Italy, Austrian Empire, Greece, Ionian Islands, and Malta	1,478,	1,461,	1,341,	1,560,	1,423,
Levant; viz., Turkey, Roumania, Syria and Palestine, and Egypt	705,	619,	706,	868,	978,
Northern Africa; viz., Tripoli, Tunis, Algeria, and Morocco	151,	124,	118,	119,	141,
Western Africa	149,	168,	145,	166,	215,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Mooria Islands	—	—	—	—	—
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands	88,	72,	48,	62,	46,
South Sea Islands	—	—	—	—	—
China, including **Hong Kong** and Japan	524,	463,	869,	566,	855,
United States of America	13,585,	12,314,	10,692,	10,783,	9,101,
Mexico and Central America	157,	163,	123,	126,	93,
Foreign West Indies and Hayti	963,	881,	741,	886,	774,
South America (Northern), New Granada, Venezuela and Ecuador	99,	78,	81,	69,	56,
" **(Pacific)**, Peru, Bolivia, Chili, and Patagonia	412,	378,	283,	253,	264,
" **(Atlantic)**, Brazil, Uruguay, and Argentine Confed.	795,	561,	458,	489,	401,
Other countries (unenumerated)	145,	132,	120,	121,	112,
Total—Foreign Countries	59,525,	56,948,	52,906,	50,140,	51,411,
II.—British Possessions.					
British India, Ceylon, and Singapore	1,540,	1,485,	1,653,	1,371,	1,802,
Austral. Cols.—New South Wales and Victoria, So. Aus., W. Aus., Tasm., and N. Zealand	2,742,	3,186,	2,526,	2,622,	2,937,
British North America	1,286,	1,135,	1,112,	1,152,	1,168,
" W. Indies with Btsh. Guiana & Honduras	388,	380,	329,	278,	315,
Cape and Natal	802,	495,	461,	323,	358,
Brt. W. Co. of Af., Ascension and St. Helena	79,	75,	66,	71,	87,
Mauritius	29,	34,	29,	31,	31,
Channel Islands	209,	230,	223,	210,	197,
Other possessions	57,	75,	44,	36,	53,
Total—British Possessions	7,132,	7,095,	6,443,	6,094,	6,948,
General Total £	66,657,	64,043,	59,349,	56,234,	58,359.

IMPORTS.—(United Kingdom.)—**For the Years 1890-89-88-87-86.**—*Declared Real Value (Ex-duty), at Port of Entry (and therefore including Freight and Importer's Profit), of Articles of Foreign and Colonial Merchandise Imported into the United Kingdom.*

[000's omitted.]

Foreign Articles Imported.		1890.	1889.	1888.	1887.	1886.
		£	£	£	£	£
Raw Matls.–*Textile*, &c.	Cotton, Raw ...	42,757,	45,269,	39,401,	39,897,	37,792,
	Wool	28,586,	30,301,	27,652,	25,983,	24,308,
	Silk*....................	14,032,	15,387,	13,793,	13,302,	13,269,
	Flax	2,856,	3,066,	2,992,	2,708,	2,416,
	Hemp and Jute	7,868,	8,694,	6,710,	5,847,	4,737,
	Indigo	1,521,	1,783,	1,704,	1,673,	1,891,
		97,620,	104,500,	92,252,	89,410,	84,413,
,, ,, *Various.*	Hides	2,514,	3,074,	3,002,	3,132,	3,610,
	Oils	2,468,	2,618,	2,197,	2,326,	2,434,
	Metals	23,711,	22,085,	23,243,	16,618,	15,040,
	Tallow	1,729.	1,645,	1,433,	1,074,	1,297,
	Timber...............	17,127,	19,826,	14,645,	11,989,	12,531,
		47,549,	49,248,	44.520,	35,139,	34,912.
,, ,, *Agrcltl.*	Guano	167,	191,	202,	186,	538,
	Seeds	6,872,	7,947,	7,579,	6,992,	6,862,
		7,039,	8,138,	7,781,	7,178,	7,400,
Tropical, &c., Produce.	Tea	9,998,	10,023,	10,216,	9,859,	11,360,
	Coffee and Chich.	4,058,	4.411,	3,659,	4,334,	3,412,
	Sugar & Molasses	18,261,	22,653,	18,260,	16,515,	15,998,
	Tobacco	3,543,	3,974,	2,821,	3,409,	3,782,
	Rice	2,549,	2,689,	2,314.	1,878,	2,466,
	Fruits	6,723,	6,215,	6.146.	5,771,	5,515,
	Wines	5,891,	5,909,	5,386,	5,468,	5,135,
	Spirits	2,128,	1,859,	1,759,	2,012,	2,032,
		53,151.	57,733,	50,561,	49,246,	49,700,
Food	Grain and Meal.	53,045,	50,808,	50,675,	47,819,	43,225,
	Provisions	51,198,	47,454,	41,775,	40,526,	38,013,
		104,243,	98,262,	92.450,	88,345,	81,238.
Remainder of Enumerated Articles		66,517,	65,103,	58,939,	52,630,	52,606,
Total Enumerated Imports		376,119,	382,984,	346,503,	321,948,	310,269,
Add for Unenumerated Imports (say)		44,767,	44,227,	40,079,	39,987,	39,112,
Total Imports		420,886,	427,211,	386,582,	361,935,	349,381,

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* "Silk," inclusive of manufactured silk, "not made up."

EXPORTS.—(United Kingdom.)—For the Years 1890-89-88-87-86.—*Declared Real Value, at Port of Shipment, of Articles of* British *and* Irish *Produce and Manufactures Exported from the United Kingdom.*

[000's omitted.]

British Produce, &c., Exported.		1890.	1889.	1888.	1887.	1886.
		£	£	£	£	£
Manfrs.—*Textile.*	Cotton Manufactures ..	62,079,	58,826,	60,325,	59,577,	57,365,
	,, Yarn	12,352,	11,711,	11,656,	11,379,	11,489,
	Woollen Manufactures	20,422,	21,340,	19,991,	20,585,	19,738,
	,, Yarn	4,089,	4,342,	4,052,	3,970,	4,406,
	Silk Manufactures	2,230,	2,507,	2,666,	2,326,	2,234,
	,, Yarn	478,	509,	388,	439,	436,
	Linen Manufactures	5,716,	5,777,	5,553,	5,455,	5,257,
	,, Yarn	866,	839,	887,	939,	935,
		108,232,	105,851,	105,518,	104,670.	101,860,
,, *Sewed.*	Apparel	5,036,	4,977,	4,659,	3,941,	3,902,
	Haberdy. and Mllnry.	2,113,	2,251,	2,322,	2,349,	2,094,
		7,149,	7,228,	6,981,	6,290,	5,996,
Metals, &c.	Hardware	2,765,	2,988,	3,167,	2,920,	2,847,
	Machinery	16,413,	15,255,	12,933,	11,146,	10,134,
	Iron	31,582,	29,153,	26,373,	25,000,	21,723,
	Copper and Brass	5,058,	3,787,	3,391,	3,005,	2,904,
	Lead and Tin	1,315,	1,282,	1,430,	1,147,	1,057,
	Coals and Culm	19,020,	14,794,	11,341,	10,176,	9,837,
		76,153,	67,259,	58,635,	53,394,	48,502,
Ceramic Manufcts.	Earthenware and Glass	3,113,	3,240,	3,104,	2,911,	2,775,
Indigenous Mnfrs. and Products.	Beer and Ale	1,877,	1,858,	1,706,	1,678,	1,583,
	Butter	138,	144,	146,	156,	165,
	Cheese	48,	49,	51,	57,	51,
	Candles	262,	231,	199,	181,	202,
	Salt	653,	539,	487,	525,	592,
	Spirits	1,250,	1,176,	1,137,	1,018,	890,
	Soda	—	—	—	—	—
		4,228,	3,997,	3,726,	3,615,	3,483,
Various Manufcts.	Books, Printed	1,325,	1,295,	1,245,	1,175,	1,117,
	Furniture	647,	—	—	—	—
	Leather Manufactures	4,279,	2,787,	2,683,	2,469,	2,223,
	Soap	535,	503,	482,	451,	446,
	Plate and Watches	404,	438,	392,	329,	368,
	Stationery	968,	965,	909,	831,	855,
		8,158,	5,988,	5,711,	5,255,	5,009,
Remainder of Enumerated Articles		42,354,	37,230,	33,847,	30,886,	30,725,
Unenumerated Articles		14,156,	17,299,	16,212,	14,377,	14,014,
	Total Exports	263,543,	248,092,	233,734,	221,398,	212,364,

SHIPPING.—(United Kingdom.)—*Account of Tonnage of Vessels Entered and Cleared with Cargoes, from and to Various Countries, during the* **Years** *ended December*, **1890-89-88.**

Countries from whence Entered and to which Cleared.	Total British and Foreign.					
	1890.		1889.		1888.	
	Entered.	Cleared.	Entered.	Cleared.	Entered.	Cleared.
FOREIGN COUNTRIES.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Russia { Northern ports	1,508,054	1,153,659	1,787,349	1,243,619	1,709,211	1,094,261
Russia { Southern ,, ...	839,262	213,719	930,603	204,132	1,033,088	214,426
Sweden	1,542,865	1,246,573	1,592,338	1,200,601	1,417,380	1,087,397
Norway	1,159,981	803,112	1,152,634	742,419	1,009,401	694,871
Denmark..............................	365,928	1,018,471	348,498	1,064,859	343,155	1,038,399
Germany..............................	1,944,907	3,485,666	1,982,872	3,512,456	2,043,730	3,225,806
Holland	1,836,907	1,803,281	1,872,415	1,827,850	2,013,233	1,702,945
Belgium	1,495,715	1,461,290	1,369,572	1,197,079	1,324,345	1,193,239
France..............................	2,126,373	3,961,517	2,122,184	3,533,130	2,150,115	3,605,588
Spain	2,891,455	1,392,799	2,626,536	1,270,798	2,403,960	1,219,234
Portugal	153,176	457,498	152,486	458,336	155,354	440,761
Italy	261,726	2,417,396	273,479	2,317,742	276,620	2,220,938
Austrian territories	46,136	72,344	66,112	79,941	66,813	58,357
Greece..............................	110,933	153,911	91,318	140,884	94,771	144,004
Roumania	373,786	122,386	268,544	86,904	315,378	110,197
Turkey	280,471	406,047	298,528	446,463	231,208	431,026
Egypt	350,387	915,743	300,719	912,627	316,743	907,716
United States of America	5,544,836	3,349,880	5,212,581	3,228,754	4,406,409	3,080,890
Mexico, Foreign West Indies, and Central America	91,152	441,494	83,165	406,560	108,392	397,427
Brazil	174,606	764,909	196,502	765,749	237,817	658,184
Peru..............................	46,806	56,015	41,679	44,998	114,483	152,617
Chili	184,009	403,088	205,353	287,716	123,571	309,041
China	127,956	84,322	140,525	57,627	163,365	88,989
Other countries	1,255,822	1,984,336	1,074,077	2,367,328	1,121,287	1,849,429
Total, Foreign Countries	24,713,249	28,169,456	24,190,069	27,398,572	23,179,829	25,925,742
BRITISH POSSESSIONS.						
North American Colonies	1,444,170	814,903	1,446,770	812,212	1,163,453	771,112
East Indies, including Ceylon, Singapore, and Mauritius	1,297,783	1,894,413	1,458,661	1,830,438	1,373,929	2,142,195
Australia and New Zealand	716,714	973,701	597,612	954,087	603,331	1,058,985
West Indies	112,839	283,518	140,420	279,053	142,013	249,300
Channel Islands..................	354,151	276,095	334,880	240,709	336,500	250,033
Other possessions	341,194	1,444,997	349,408	1,533,810	278,127	1,267,073
Total, British Possessions	4,266,851	5,687,627	4,327,751	5,650,309	3,897,353	5,738,698
TOTAL FOREIGN COUNTRIES AND BRITISH POSSESSIONS.						
Twelve Months ended December, { 1890........	28,980,100	33,857,083	—	—	—	—
Twelve Months ended December, { '89........	—	—	28,517,820	33,048,881	—	—
Twelve Months ended December, { '88........	—	—	—	—	27,077,182	31,664,440

GOLD AND SILVER BULLION AND SPECIE.—(United Kingdom.) —*Declared Real Value of*, IMPORTED AND EXPORTED *for the* Years 1890-89-88.

[000's omitted.]

Countries.	1890.		1889.		1888.	
	Gold.	*Silver.*	Gold.	*Silver.*	Gold.	*Silver.*
Imported from—	£	£	£	£	£	£
Australia	2,097,	197,	4,169,	28,	3,945,	33,
S. America, Brazil, Mexico, W. Indies	4,412,	2,527,	2,801,	2,146,	786,	2,264,
United States	2,594,	4,058,	2,569,	3,976,	2,251,	2,384,
	9,103,	6,782,	9,539,	6,150,	6,982,	4,681,
France	4,848,	2,022,	1,673,	2,281,	3,107,	840,
Germany, Holland, Belg., and Sweden	3,979,	1,122,	2,895,	388,	1,860,	387,
Portugal, Spain, and Gibraltar	1,875,	134,	64,	164,	82,	169,
Malta and Egypt........	515,	187,	676,	150,	1,395,	34,
China, with Hong Kong and Japan	582,	56,	658,	—	1,057,	—
West Coast of Africa	151,	29,	170,	27,	146,	40,
All other Countries	2,515,	54.	2,011,	25,	1,161,	63,
Totals Imported	23,568,	10,386,	17,686,	9,185,	15,790,	6,214.
Exported to—						
France	813,	458,	1,692,	126,	3,	545,
Germany, Holland, Belg. & Sweden	1,881,	154,	993,	47,	1,756.	256,
Portugal, Spain, and Gibraltar	4,189,	660,	2,394,	51,	1,941,	352,
	6,883,	1,272,	5,079,	224,	3,700,	1,153,
B. India, China, Hong Kong and Japan	2,802,	8,456,	1,669,	9,621,	632,	5,841,
United States	1,012,	629,	10,	31,	4,	32,
South Africa	750,	61,	2,391,	242,	1,420,	70,
S. America, Brazil, Mexico, W. Indies	1,855,	151,	4,097,	322,	7,688,	306,
All other Countries ...	1,005,	321,	1,209,	226,	1,500,	213,
Totals Exported ...	14,307,	10,890,	14,455,	10,666,	14,944,	7,615,
Excess of imports ...	9,261,	—	3.231,	—	846,	—
,, exports	—	504,	—	1,481,	—	1,401,

BRITISH CORN.—*Gazette Average Prices* (ENGLAND AND WALES), *Weekly for* 1890.

Weeks ended on Saturday.	Weekly Average. (Per Imperial Quarter.)						Weeks ended on Saturday.	Weekly Average. (Per Imperial Quarter.)					
	Wheat.		Barley.		Oats			Wheat.		Barley.		Oats.	
1890.	s.	d.	s.	d.	s.	d.	1890.	s.	d.	s.	d.	s.	d.
Jan. 4	30	–	30	5	18	3	July 5	32	8	22	6	19	10
,, 11	30	1	31	5	18	4	,, 12	33	2	24	2	19	4
,, 18	30	2	32	3	18	4	,, 19	33	10	24	6	19	6
,, 25	30	1	32	2	18	7	,, 26	35	–	25	2	19	10
Feb. 1	30	1	32	2	18	6	Aug. 2	35	10	23	4	20	4
,, 8	29	9	31	10	18	7	,, 9	36	3	24	5	20	5
,, 15	29	8	31	8	18	7	,, 16	36	6	25	4	20	3
,, 22	29	9	31	2	18	6	,, 23	36	5	26	2	20	1
							,, 30	35	9	31	3	19	2
March 1	29	10	30	11	18	8							
,, 8	29	11	30	9	18	6	Sept. 6	34	6	30	11	19	1
,, 15	29	11	30	8	18	6	,, 13	33	7	30	3	18	8
,, 22	29	8	30	4	18	7	,, 20	32	1	29	11	17	9
,, 29	29	9	29	10	18	6	,, 27	31	6	29	9	17	8
April 5	29	8	30	–	18	1	Oct. 4	31	2	29	5	17	5
,, 12	29	9	29	9	18	6	,, 11	30	11	29	3	17	5
,, 19	29	10	29	10	18	6	,, 18	30	10	29	7	17	3
,, 26	30	4	29	2	18	6	,, 25	31	–	29	10	17	3
May 3	30	9	27	9	18	8	Nov. 1	31	6	29	7	17	3
,, 10	31	7	28	3	19	2	,, 8	32	1	29	5	17	3
,, 17	32	5	27	7	19	3	,, 15	32	8	29	3	17	6
,, 24	33	2	30	5	19	10	,, 22	32	9	28	11	17	8
,, 31	32	11	26	5	19	10	,, 29	32	7	29	–	17	8
June 7	32	10	25	1	19	8	Dec. 6	32	3	28	9	17	10
,, 14	32	8	25	7	20	–	,, 13	32	2	28	5	17	10
,, 21	32	9	24	11	19	11	,, 20	32	4	28	8	17	6
,, 28	32	8	26	–	19	6	,, 27	32	3	28	5	17	11

BRITISH CORN.—*Gazette Average Prices* (England and Wales), *Summary of, for* 1890, *with those for* 1889, *added for Comparison.*

Average for	Per Imperial Quarter, 1890.						Per Imperial Quarter, 1889.					
	Wheat.		Barley.		Oats.		Wheat.		Barley.		Oats.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
January	30	1	31	6	18	4	30	2	26	9	16	4
February	29	9	31	8	18	6	29	6	26	4	16	5
March	29	9	30	6	18	6	30	1	25	10	16	11
First quarter	29	10	31	3	18	5	29	11	26	4	16	7
April	29	10	29	8	18	4	29	10	25	–	17	6
May	32	8	28	1	19	4	29	9	23	10	18	4
June	32	8	25	4	19	9	28	6	21	6	18	8
Second quarter	31	9	27	8	19	2	29	4	23	5	18	2
July	33	8	24	1	19	7	29	2	21	7	19	4
August	36	1	26	1	20	–	30	9	20	7	19	6
September	32	11	30	2	18	3	29	11	29	1	17	9
Third quarter	34	3	26	9	19	3	29	11	23	9	18	10
October	30	11	29	6	17	4	29	8	30	–	16	7
November	32	3	29	2	17	5	30	1	30	5	17	1
December	32	3	28	6	17	9	30	–	30	2	17	11
Fourth quarter	31	10	29	1	17	6	29	11	30	2	17	2
THE YEAR	31	11	28	8	18	7	29	9	25	11	17	8

REVENUE OF THE UNITED KINGDOM.

Net Produce in QUARTERS *and* YEARS *ended* 31*st* DEC., 1890-89-88-87.

[000's omitted.]

QUARTERS, ended 31st Dec.	1890.	1889.	1890.		Corresponding Quarters.	
			Less.	More.	1888.	1887.
	£	£	£	£	£	£
Customs	5,422,	5,879,	457,	—	5,516,	5,452,
Excise	7,120,	7,015,	—	105,	7,870,	7,850,
Stamps	3,360,	3,480,	120,	—	2,960,	3,180,
Taxes	30,	40,	10,	—	35,	35,
Post Office	2,490,	2,390,	—	100,	2,360,	2,370,
Telegraph Service	615,	590,	—	25,	515,	465,
	19,037,	19,394,	587,	230,	19,256,	19,352,
Property Tax	1,180,	1,110,	—	70,	1,010,	1,130,
	20,217,	20,504,	587,	300,	20,266,	20,482,
Crown Lands	160,	160,	—	—	160,	150,
Interest on Advances	211,	113,	—	98,	114,	21,
Miscellaneous	656,	801,	145,	—	727,	723,
Totals	21,244,	21,578,	732,	398,	21,267,	21,376,
			NET DECR. £334,			

YEARS, ended 31st Dec.	1890.	1889.	1890.		Corresponding Years.	
			Less.	More.	1888.	1887.
	£	£	£	£	£	£
Customs	19,816,	20,423,	607,	—	19,927,	19,747,
Excise	25,335,	24,625,	—	710,	25,660,	25,550,
Stamps	13,580,	12,770,	—	810,	13,130,	12,385,
Taxes	2,975,	2,975,	—	—	2,945,	2,910,
Post Office	9,670,	9,460,	—	210,	8,890,	8,580,
Telegraph Service	2,425,	2,255,	—	170,	2,040,	1,915,
	73,801,	72,508,	607,	1,900,	72,592,	71,117,
Property Tax	12,870,	12,480,	—	390,	13,695,	15,615,
	86,671,	84,988,	607,	2,290,	86,287,	86,732,
Crown Lands	430,	430,	—	—	420,	390,
Interest on Advances	348,	286,	—	62,	334,	453,
Miscellaneous	3,079,	3,259,	180,	—	3,132,	2,788,
Totals	90,528,	88,963,	787,	2,352,	90,173,	90,363,
			NET INCR. £1,565,			

LONDON CLEARING; CIRCULATION, PRIVATE AND PROVINCIAL.

The London Clearing, and the Average Amount of Promissory Notes in Circulation in England *and* Wales *on Saturday in each Week during the Year* **1890**; *and in* Scotland *and* Ireland, *at the Dates, as under.*

[0,000's omitted.]

England and Wales.					Scotland.				Ireland.		
Dates. *Saturday.*	*London:* Cleared in each Week on the preceding *Wednesday.*	Private Banks. (Fixed Issues, 2,89).	Joint Stock Banks. (Fixed Issues, 2,04).	Total. (Fixed Issues, 4,93).	Average for Four Weeks ending	£5 and upwards	Under £5.	Total. (Fixed Issues, 2,68).	£5 and upwards	Under £5.	Total. (Fixed Issues, 6,35).
1890.	£	£	£	£	1890.	£	£	£	£	£	£
Jan. 4......	180,98	1,09	1,32	2,41	Jan. 4...	1,87	4,33	6,20	3,96	3,13	7,09
„ 11......	149,81	1,10	1,34	2,44							
„ 18......	172,75	1,09	1,32	2,41							
„ 25......	139,05	1,07	1,30	2,37							
Feb. 1......	124,09	1,06	1,28	2,34	Feb. 1...	1,74	4,05	5,79	3,84	2,80	6,64
„ 8......	187,61	—	—	—							
„ 15......	128,21	1,03	1,27	2,30							
„ 22......	174,21	1,02	1,27	2,29							
Mar. 1......	124,79	1,02	1,29	2,31	Mar. 1...	1,68	4,06	5,74	3,79	2,84	6,63
„ 8......	186,20	1,03	1,31	2,34							
„ 15......	119,83	1,02	1,30	2,32							
„ 22......	165,22	1,03	1,31	2,34							
„ 29......	125,43	1,06	1,35	2,41	„ 29...	1,63	4,05	5,68	3,84	2,81	6,65
April 5......	181,79	1,11	1,41	2,52							
„ 12......	108,46	1,11	1,41	2,52							
„ 19......	162,43	1,10	1,40	2,50							
„ 26......	132,82	1,08	1,38	2,46	April 26...	1,72	4,24	5,96	4,11	2,92	7,03
May 3......	173,52	1,10	1,40	2,50							
„ 10......	146,34	—	—	—							
„ 17......	126,65	1,10	1,38	2,48							
„ 24......	184,18	1,08	1,36	2,44	May 24...	2,12	4,60	6,72	4,14	2,90	7,04
„ 31......	97,24	1,06	1,34	2,40							
une 7......	188,62	1,05	1,31	2,36							
„ 14......	121,04	1,04	1,28	2,32							
„ 21......	148,99	1,02	1,26	2,28	June 21...	2,07	4,60	6,67	3,85	2,78	6,63
„ 28......	127,17	1,03	1,26	2,29							
uly 5......	212,00	1,05	1,28	2,33							
„ 12......	140,12	—	—	—							
„ 19......	179,85	1,02	1,25	2,27	July 19...	1,89	4,55	6,44	3,70	2,72	6,42
„ 26......	142,88	1,00	1,23	2,23							
ug 2......	128,85	1,00	1,23	2,23							
„ 9......	174,89	1,00	1,22	2,22							
„ 16......	132,73	98	1,20	2,18	Aug. 16...	1,84	4,43	6,27	3,65	2,68	6,33
„ 23......	167,72	96	1,19	2,15							
„ 30......	120,61	96	1,19	2,15							
pt 6......	170,39	97	1,19	2,16							
„ 13......	137,49	98	1,18	2,16	Sept. 13...	1,85	4,45	6,30	3,58	2,70	6,28
„ 20......	162,23	99	1,20	2,19							
„ 27......	122,26	1,02	1,23	2,25							
t. 4......	177,39	1,10	1,30	2,40							
„ 11......	136,69	—	—	—	Oct. 11...	1,79	4,49	6,28	3,76	2,89	6,65
„ 18......	174,38	1,13	1,34	2,47							
„ 25......	129,03	1,12	1,33	2,45							
ov. 1......	163,79	1,11	1,34	2,45							
„ 8......	143,42	1,11	1,35	2,46	Nov. 8...	4,90	4,67	9,57	4,27	3,18	7,45
„ 15......	131,10	1,10	1,35	2,45							
„ 22......	176,60	1,09	1,35	2,44							
„ 29......	114,22	1,09	1,34	2,43							
c. 6......	172,73	1,07	1,30	2,37	Dec. 6...	2,16	4,88	7,04	4,22	3,16	7,38
„ 13......	116,56	1,06	1,28	2,34							
„ 20......	150,87	1,05	1,26	2,31							
„ 27......	123,79	1,05	1,25	2,30							

BANK OF ENGLAND.

Pursuant to the Act 7th and 8th Victoria, cap. 32 (1844).

[0,000's omitted.]

1	2	3	4	5	6	7
Issue Department.					Collateral Columns.	
Liabilities.	Dates.	Assets.				
Notes Issued.	(Wednesdays.)	Government Debt.	Other Securities.	Gold Coin and Bullion.	Notes in Hands of Public. (Col. 1 minus col. 16.)	Minimum Rates of Discount at Bank of England.
£	1890.	£	£	£	£	Per cnt. (End of 1889) 5
Mlns.		Mlns.	Mlos.	Mlns.	Mlns.	1 Jan. 6
33,32	Jan. 1	11,02	5,18	17,12	24,68	
33,48	„ 8	11,02	5,18	17,28	24,51	
34,01	„ 15	11,02	5,18	17,81	24,15	
34,57	„ 22	11,02	5,18	18,37	23,86	
36,09	„ 29	11,02	5,18	19,89	23,52	
36,36	Feb. 5	11,02	5,18	20,16	23,85	
37.22	„ 12	11,02	5,18	21,02	23.47	19 Feb. 5
38,31	„ 19	11,02	5,43	21,86	23,18	
38,89	„ 26	11,02	5,43	22,44	23,07	
39,01	Mar. 5	11,02	5,43	22,56	23.67	12 Mar..... . 4½
39,18	„ 12	11,02	5,43	22,73	23.30	19 „ 4
39,43	„ 19	11,02	5,43	22,98	23,14	
39,75	„ 26	11,02	5,43	23,30	23,88	
39,34	April 2	11,02	5,43	22,90	24,93	9 April...... 3½
38,87	„ 9	11,02	5,43	22,42	24,73	16 „ 3
38,98	„ 16	11,02	5,43	22,53	24,43	
38,50	„ 23	11,02	5,43	22,05	24,43	
38,22	„ 30	11,02	5,43	21,77	24,82	
37,45	May 7	11,02	5,43	21,00	24,96	
37,36	„ 14	11,02	5,43	20,91	24,82	
37,45	„ 21	11,02	5,43	21,00	24,69	
37,13	„ 28	11,02	5,43	20,68	24,55	
36,84	June 4	11,02	5,43	20,39	24,86	
36,98	„ 11	11,02	5,43	20,53	24.60	
36,74	„ 18	11,02	5,43	20,29	24,44	
36,79	„ 25	11,02	5,43	20,34	24,86	25 June...... 4
36,53	July 2	11,02	5,43	20.08	25,60	
36,11	„ 9	11,02	5,43	19,66	25,54	
35,83	„ 16	11,02	5,43	19.38	25,27	
36,16	„ 23	11,02	5,43	19,71	25,02	
36,31	„ 30	11,02	5,43	19,86	25,33	30 July 5
36,02	Aug. 6	11,02	5,43	19.57	25,65	
37,48	„ 13	11,02	5,43	21,03	25,22	20 Aug....... 4
37,95	„ 20	11,02	5,43	21,50	24,81	
38,03	„ 27	11,02	5,43	21,58	24.80	
38,10	Sept. 3	11,02	5,43	21.65	24,92	
37,73	„ 10	11,02	5,43	21,28	24,70	
37,23	„ 17	11.02	5,43	20,78	24,52	24 Sept. ... 5
36,62	„ 24	11,02	5,43	20,17	24,33	
35,58	Oct. 1	11,02	5,43	19,13	25.41	
35,05	„ 8	11,02	5,43	18.60	25,28	
35,32	„ 15	11,02	5,43	18,87	25,04	
35,10	„ 22	11,02	5,43	18,65	24,53	
35,21	„ 29	11,02	5,43	18,76	24,61	
35,03	Nov. 5	11,02	5,43	18,58	24,79	12 Nov....... 6
34,51	„ 12	11,02	5,43	18.06	24,49	
37,84	„ 19	11,02	5,43	21.39	24,46	
39,94	„ 26	11,02	5,43	23,49	24,63	3 Dec. 5
40,21	Dec. 3	11,02	5,43	23,76	24,67	
40,18	„ 10	11,02	5,43	23.73	24.29	
39,86	„ 17	11,02	5,43	23.41	24,06	
39,10	„ 24	11.02	5,43	22 65	24,89	
39,19	„ 31	11,02	5,43	22,74	25,11	

—WEEKLY RETURN.

for Wednesday in each Week, during the Year 1890.

[0,000's omitted.]

8	9	10	11	12	13	14	15	16	17	18
BANKING DEPARTMENT.										
Liabilities.						Assets.				Totals of Liabilities and Assets.
Capital and Rest.		Deposits.		Seven Day and other Bills.	DATES. (Wednesdys.)	Securities.		Reserve.		
Capital.	Rest.	Public.	Private.			Government.	Other.	Notes.	Gold and Silver Coin.	
£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	1890.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.	£ Mlns.
14,55	3,18	6,10	28,00	,15	Jan. 1	14,87	27,81	8,64	67	51,99
14,55	3,40	6,28	25,62	,17	„ 8	17,07	23,12	8,97	86	50,03
14,55	3,44	5.38	24,76	,21	„ 15	15,77	21,86	9,86	85	48,34
14,55	3,45	5.98	22,84	,21	„ 22	14,62	20,82	10,71	87	47,02
14,55	3,46	7,67	23,24	,18	„ 29	14,62	21,07	12,57	84	49,10
14.55	3,49	7,10	23,10	,22	Feb. 5	13,86	21,15	12,51	93	48,46
14,55	3,50	8,42	22,88	,23	„ 12	13,86	20,94	13,75	1,03	49,59
14.55	3,53	9,51	22,62	,21	„ 19	13,78	20,45	15,13	1,05	50,41
14,55	3,47	10,75	24,60	,18	„ 26	13,76	22,97	15,82	1,00	53,55
14,55	3,78	10,34	22,91	,20	Mar. 5	14,24	21,18	15,34	1,02	51,79
14.55	3,79	9.50	23,39	,23	„ 12	13.97	20,60	15,88	1,02	51,47
14,55	3,81	10.28	23,29	,24	„ 19	13,80	20,97	16,29	1,12	52,17
14,55	3,84	11,24	25,04	,19	„ 26	13,80	24,24	15,87	96	54,87
14,55	3,84	11,17	25,84	,22	April 2	15,77	24.51	14,41	94	55,63
14,55	3,14	7,72	26.52	,17	„ 9	15,77	21,23	14,14	97	52,10
14,55	3,14	7,21	27,15	,16	„ 16	15,58	21,00	14,55	1,10	52,22
14.55	3,15	7.55	26,35	,19	„ 23	15,58	21,04	14,07	1,10	51,79
14,55	3,14	8,83	26,18	,20	„ 30	16,05	22,40	13,40	1,05	52,90
14,55	3,15	8.07	24,47	,23	May 7	16.00	20,87	12,49	1,11	50,47
14.55	3.15	6,03	26,34	,22	„ 14	15,61	21,01	12,54	1,14	50,29
14,55	3,16	6.21	26,52	,22	„ 21	15,51	21,28	12,76	1,12	50,67
14,55	3,16	6,39	25,99	,18	„ 28	15,51	21,11	12,58	1,08	50,27
14,55	3,11	5.53	25.14	,22	June 4	15,51	19.87	11,98	1,21	48,56
14,55	3,11	7,07	25,20	,28	„ 11	15,51	21,10	12,38	1,23	50,21
14,55	3,12	7,56	26,68	,26	„ 18	15,51	23,19	12.30	1,16	52,16
14,55	3,13	8,27	27,25	,23	„ 25	15,51	24,76	11,93	1,24	53,43
14,55	3,18	6.52	27,78	,25	July 2	14,01	26,20	10,93	1,15	52,28
14.55	3,38	5.24	28,21	,25	„ 9	15,10	24,82	10,57	1,15	51,64
14,55	3,40	4,21	29.04	,23	„ 16	14.90	24,86	10,56	1,12	51,44
14,55	3,41	3.74	27,58	,20	„ 23	14,50	22,71	11,14	1,13	49,49
14,55	3,40	3.37	27,62	,21	„ 30	14,40	22,72	10,98	1,05	49,15
14,55	3.45	2.76	28,22	,24	Aug. 6	14,21	23,58	10,37	1,05	49,22
14,55	3,47	2,79	28,76	,20	„ 13	14,57	21,89	12,26	1,05	49,78
14,55	3,50	3,61	28,87	,22	„ 20	15,07	21,38	13,14	1,15	50,75
14,55	3,50	2,88	28,63	,20	„ 27	13,97	21,46	13,23	1,10	49,76
14,55	3,78	2,45	29,03	,22	Sept. 3	13,79	21,83	13,18	1,04	50,02
14,55	3,78	2,65	27,85	,27	„ 10	14,22	20,89	13,03	96	49,10
14,55	3,82	3,06	27,79	,21	„ 17	14,42	21,34	12,71	96	49,43
14,55	3,83	3.80	28,09	,19	„ 24	14,42	22,89	12,29	87	50,46
14,55	3,84	3.91	29,04	,23	Oct. 1	14,36	26,09	10,17	96	51,58
14,55	3,12	4.65	28.69	,26	„ 8	17,55	23.14	9,77	82	51,24
14,55	3,15	3.34	30,25	,25	„ 15	17,25	23.09	10,28	92	51,53
14,55	3,15	3.45	29.30	,21	„ 22	16,20	22,96	10,57	95	50,67
14,55	3,17	3,55	29,05	,23	„ 29	16,13	22,82	10,60	1,00	50,55
14,55	3,16	2,69	29,17	,26	Nov. 5	15,50	23,13	10,24	97	49,83
14,55	3,18	2,89	30,29	,22	„ 12	14,95	25,07	10,02	1,08	51,12
14,55	3,29	4,09	36,36	,17	„ 19	11,78	32,14	13,38	1,17	58,47
14,55	3,27	3,84	34.99	,17	„ 26	10,40	29,92	15,31	1,19	56,82
14,55	3,21	3.31	33,31	,19	Dec. 3	10,40	27,52	15.54	1,13	54,59
14 55	3,22	3.92	32,64	,18	„ 10	10,14	27,37	15.90	1,10	54,52
14,55	3,24	4.35	33,20	,16	„ 17	10,14	28,60	15 80	97	55,51
14,55	3,25	5,42	30,25	,16	„ 24	10,14	28,60	14,21	69	53,64
14,55	3,24	6,82	32,99	,18	„ 31	9,81	33,18	14,08	72	57

FOREIGN EXCHANGES.—*Quotations as under,* LONDON *on Paris, Hamburg, and Calcutta;—and New York, Calcutta, and Hong Kong, on* LONDON, *for* **1890.**

1	2	3	4		5	6	7		8		9
			Calcutta.						Price per Ounce.		
DATES. (Thursdays)	London on Paris. 3 m. d.	London on Hamburg. 3 m. d.	London on Calcutta.		Indian Council Bills. Minimum Price per Rupee.	New York on London. 60 d. s.	Hong Kong on London. 4 m. d.		Gold Bars (Fine).		Standard Silver in Bars.
1889.			*s.*	*d.*	*d.*	Per cnt.	*s.*	*d.*	*s.*	*d.*	*d.*
Jan. 9 ...	25·42½	20·67	1	4⅞	17⅛	4·80	3	$1\frac{15}{16}$	77	10	44⅛
„ 23 ...	25·43¾	20·69	1	5⅛	17⅜	4·82	3	2¾	77	9	44½
Feb. 6	25·46¼	20·69	1	5⅛	17¼	4·83½	3	2	77	9	44½
„ 20	25·43¾	20·69	1	4¾	17	4·82½	3	1¾	77	9	44
Mar. 6	25·41¼	20·68	1	$4\frac{13}{16}$	$17\frac{3}{16}$	4·84	3	1⅝	77	9	44¼
„ 20	25·37½	20·63	1	$4\frac{13}{16}$	$16\frac{15}{16}$	4·84	3	1¼	77	9	43¾
Apl. 3	25·38¾	20·59	1	$4\frac{13}{16}$	$17\frac{1}{16}$	4·84¾	3	2⅛	77	9	43⅞
„ 17 ...	25·33¾	20·55	1	4¾	$17\frac{17}{32}$	4·85	3	3⅛	77	9	45
May 8 ...	25·31¼	20·54	1	5⅜	17½	4·84¼	3	3⅝	77	9¾	46¼
„ 22	25·31¼	20·54	1	6	$17\frac{15}{16}$	4·83¼	3	4⅜	77	9	$47\frac{7}{16}$
June 5	25·32½	20·56	1	$5\frac{13}{16}$	$17\frac{13}{16}$	4·84½	3	4¼	77	10	46¼
„ 19	25·33¾	20·56	1	5⅞	18⅝	4·85¼	3	4⅝	77	10	48⅜
July 3 ...	25·36¼	20·58	1	6¼	$18\frac{9}{32}$	4·84	3	5¼	77	10	$47\frac{3}{16}$
„ 17 ...	25·48¾	20·66	1	7	19¼	4·84¼	3	7½	77	10	50
Aug. 7 ...	25·50	20·68	1	$7\frac{3}{16}$	19¼	4·84½	3	7¾	77	9	51¼
„ 21	25·46¼	20·62	1	8¼	19¾	4·82	3	10½	77	9	54
Sept. 4 ...	25·45	20·60	1	8⅜	20¾	4·82½	3	10⅛	77	9	54½
„ 18 ...	25·42½	20·59	1	$8\frac{9}{32}$	20½	4·80½	3	9¾	77	9	53½
Oct. 2 ...	25·50	20·66	1	6¼	19⅜	4·81½	3	8⅛	77	9	50
„ 16	25·51¼	20·65	1	6⅝	$19\frac{1}{32}$	4·80½	3	5½	77	9½	49¾
Nov. 6	25·47½	20·64	1	$6\frac{5}{16}$	18½	4·80½	3	5	77	10	$48\frac{3}{16}$
„ 20	25·62½	20·77	1	5¼	$17\frac{15}{16}$	4·79½	3	4⅛	77	9½	45
Dec. 4 ...	25·48¾	20·64	1	6¼	$18\frac{5}{16}$	4·80	3	5½	77	9	48⅛
„ 18	25·43¾	20·63	1	6⅛	18⅞	4·80	3	7	77	10½	49½

Vol. LIV.] [Part II.

JOURNAL

OF THE ROYAL STATISTICAL SOCIETY,

JUNE, 1891.

On PRISON ETHICS *and* PRISON LABOUR. *By the* PRESIDENT, F. J. MOUAT, F.R.C.S., LL.D., *formerly Inspector-General of Jails, Bengal, and Justice of the Peace for Calcutta, &c.*

[Read before the Royal Statistical Society, 17th March, 1891.
Sir RAWSON W. RAWSON, a Past President, in the Chair.]

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1. WHEN unexpectedly called upon to furnish a paper for the March meeting of the Royal Statistical Society, with no time for original research, it struck me that it was several years since any branch of the management and discipline of prisons

Introduction.

had been specially considered by the Society, and that an evening might profitably be devoted to that important subject. I remembered also that a Penitentiary Congress had met in St. Petersburgh in June last, to which I was nominated as a delegate of the Society, but which I was unable to attend from sickness, and that I had put together some notes on one of the chief matters to be discussed, which I had intended to submit to the Congress in person had I been able to put in an appearance.

In the second section of the proposed programme of the Congress were three questions relating to prison labour, and an illustrative exhibition of the results of prison industry was intended to be held. The nature of this latter I am unacquainted with, as the report of the Congress has not yet been published, but I sent them an account of the first exhibition of the kind ever organised—that by myself in Calcutta in 1856.

The first question was regarding the regulation of prison labour; the second had reference to its bearing on free labour, with a consideration of the best means of avoiding any injurious competition in the matter; and the third dealt with the encouragements which may be allowed to a convict in the disposal of his earnings, without prejudice to the maintenance of good discipline.

These notes I intend to utilise this evening; and as a very beneficial and, in my opinion, accurate view of the importance of prison labour as an instrument of punishment, reformation, and profit, is now taken by the prison authorities in this country, under legislative sanction and the able direction of Sir Edmund Du Cane, it seems to me to be desirable to place on record the reasons why I have long considered it to be the most rational, humane, and effective system of punishing and preventing crime which has yet been put in practice.

The ethics of prison labour.

2. In considering all such questions, and in particular those which have been, and still are in some degree, the subject of so much controversy as that of the proper and effective punishment of crime, it is as well, I think, to consider first the ethics or principles and laws regulating the procedure to be adopted, and then to apply them to their practical uses, to ascertain by their results how far the practice is in accord with the principles.

Among the purposes of the St. Petersburgh Congress, not the least interesting was to do honour to the memory of the illustrious prison philanthropist and apostle of humanity, in celebrating the centenary of his death in Russia. We need go no further back to ascertain his views than to refer to the great work of John Howard on the "State of the Prisons in England and Wales," which appeared in 1777.

When writing of the prisons of Holland, he mentions that "the States do not transport convicts," but men are put to labour in the task-houses, and women to proper work in the spin-houses, upon this professed maxim, "Make them diligent, and they will "be honest."

In Holland, even in those days, the children of malefactors who were executed, and of those who were sentenced for long terms to the task or spin-houses, were sent to the orphan house, and were there brought up in industry, and not left destitute vagabonds to become unhappy victims to the wickedness and folly of their parents.

In the hospital of San Michel, in Rome, visited by Howard in 1778, in the department used as a prison for boys and young men, he copied two inscriptions which embodied, as he rightly conceived, "an expression of the grand purpose of all civil policy "in relation to criminals."

On the door was inscribed:—

Pope Clement XI.
For the correction and instruction
of profligate youth,
That they who when idle, were injurious,
When instructed might be useful
to the State.
1704.

In the room itself appeared the following sentence; both were in Latin:—

It is of little advantage
To restrain the bad by punishment,
Unless you render them good
by discipline.

Now, the best method of accomplishing this desirable end is not yet settled. There are still advocates of each of the two leading systems, based on opposite theories of the uses of imprisonment as a punishment and prevention.

The oldest is that a prison should be rendered a terror to evil doers by the infliction of as much pain as can be inflicted without direct injury to health or risk to life. The other is a graduated system of punishment, from which the direct infliction of pain is eliminated, and the prisoner is allowed to work his way to freedom and mitigation of sentence by good conduct in jail, supplemented by industry in the tasks assigned to him, in accordance with his crime and sentence.

In the first plan, the moral improvement of the prisoner is either altogether ignored, or subordinated so entirely to the object of rendering his prison life burdensome, as to be practically lost sight of. This system seems to me to be founded on an erroneous view of human nature, which has, in my belief, caused its failure wherever it has been rigorously enforced.

Solitary confinement for various periods, deprivation of all sources of enjoyment, prolonged enforced silence, and their gloomy accompaniments, aimless, dispiriting, and exhausting tasks, have often produced their natural results in wrecking both mind and body. I doubt if they have exercised the smallest influence upon the habitually criminal classes in determent of crime. The reason of this appears to me to be simple and obvious. Pain is a sensation, and has no immediate connection with a moral sentiment. Pain, again, is confined to the individual made to suffer it, and can scarcely be fully realised by other persons, even in its active manifestations. The mental and bodily torture of long continued solitary confinement, unrelieved by a ray of the sunshine of humanity, is never seen by the outer world, and even if witnessed by others whom it is intended to deter, would have no active terrors, for it is a passive state. The painful scenes witnessed at public executions when the laws were savage in their severity, and brutal in their exhibition, had no effect whatever in deterring from crime, and simply demoralised those who thronged to gloat over the sufferings of the victims of perverted justice.

In our Norfolk Island, the system of unrelenting severity in its most repulsive form, succeeded in converting rational beings into unreasoning fiends, and failed so entirely to deter from the commission of the most appalling crimes, as to lead to its abandonment as a scandal and reproach to humanity itself.

The limits of pain in punishment.

3. Mr. Herbert Spencer, in one of his most thoughtful essays, tells us that in all such matters we should consult first principles, and not cling to unreasoning empiricism. In his well reasoned essay on Prison Ethics, he has shown to what extent the coercion of a criminal is legitimate, and the limits to which such coercion can, in consequence, properly be carried. All beyond what absolute morality countenances, is, in his opinion, as unnecessary, inexpedient, and unjustifiable, as it is useless. The necessities of civilisation require no gratuitous infliction of pain, no revengeful penalties. "Complete life being the end of morality, and the conditions it insists "on being such as to make possible this complete life to all "members of a community, we cannot rightly abrogate these con"ditions, even in the person of a criminal, further than is needful "to prevent greater abrogation of them . . . Freedom to "fulfil the laws of life being the thing insisted on, to the end "that the sum of life may be the greatest possible, it follows that "the life of the offender must be taken into account as an item in "this sum, and that we must permit him to live as completely as

" consists with social safety. It is commonly said that the criminal " loses all his rights. This may be so according to law, but it is not " so according to justice. Such portion of them is only justly taken " away as cannot be left to him without danger to the community. " Those exercises of faculty, and consequent benefits, which are " possible under the necessary restraint, cannot be equitably denied. " If any do not think it proper that we should be thus regardful of " an offender's claim, let them consider for a moment the lesson that " nature teaches us. We do not find that those divinely ordained " laws of life, by which bodily health is maintained, are miraculously suspended in the person of the prisoner. In him, as in " others, good digestion waits on appetite. If he is wounded the " healing process goes on with the usual rapidity. When he is ill, " as much is expected from the *vis medicatrix naturæ* by the medical " officer, as in one who has not transgressed. His perceptions yield " him guidance, as they did before he was imprisoned, and he is " capable of much the same pleasurable emotions."

With much more to the same effect, Mr. Spencer says, " Is it " not clear that neither by absolute morality, nor by nature's precedents, are we warranted in visiting on him any pains besides " those involved in remedying, as far as may be, the evil committed, " and preventing other such evils;" and he goes on to show that the natural consequences of imprisonment, when rigorously enforced, are quite severe enough, and quite as much as absolute morality demands.

The natural consequences of imprisonment.

4. What, then, may be regarded as the natural consequence of imprisonment?

Bentham classes the consequences under three heads, viz.: the necessary inconveniences, the accessory inconveniences, and those which are abuses.

The necessary inconveniences (or consequences) are—loss of liberty, with all the consequences arising from this loss; disruption of family and social ties; destruction of business; a compulsory state of existence in all matters, and the necessary conformity to strict regulations, in which no freedom, even of will, can be granted.

The accessory pains are—a compulsory diet, uncomfortable means of repose, exclusion of society (except at brief intervals under strict regulations), forced association with undesirable companions (where association is unwisely allowed), absence of the means of communicating with the outer world, and enforced labour in uncongenial pursuits, or what is still more difficult to bear, compulsory idleness. Now, if these necessary and accessory inconveniences are strictly enforced, they are quite as severe in the way of punishment, as society has any right to impose. All in excess of these, veil it as you will, is simply torture in disguise, and as such not sanctioned by or consistent with our civilisation, our Christianity, or our laws human and divine, or in accordance with the doctrines preached and practised by Howard.

The last authority I shall quote on this point is Beccaria, the enlightened Italian jurist, whose work on crime and punishment is still one of the most sound, logical, and valuable of all the contributions to this great and important branch of criminal law.

He says that, "If it can only be proved that the severity of "punishments, though not immediately contrary to the public "good, or to the end for which they were intended, viz., to prevent "crime, be useless, then such severity would be contrary to those "beneficial motives which are the consequences of enlightened "reason, which induces the sovereign to wish rather to govern men "in a state of happiness and freedom than of slavery. It would "also be contrary to practice and the social compact."

The general opinion of the Penitentiary Congresses which have of late years brought the experts of all nations together, has been, with singular unanimity, to condemn all proceedings of mere harshness and repression, as unnecessary and useless.

A reference to the causes of the great majority of crimes in all countries, and in all stages of civilisation, would show conclusively the reason why it should be so; and why the *à priori* doctrine is borne out by the *à posteriori* conclusion, for there is, in my opinion, no real antagonism in the two schools of morality on this cardinal point of criminal practice, viz., that as Herbert Spencer puts it, "the commands of absolute morality shall be obeyed as far as "possible, that we shall fulfil them up to those limits beyond which "experiment proves that more evil than good results. Experience "and experiment have now shown, all over the world, that the "most successful criminal discipline is a discipline of decreased "restraints and increased self dependence; and the evidence proves "the success to be greatest where the nearest approach is made "to the arrangements prescribed by abstract justice."

The maxim of Pope Clement.

5. This brings me again naturally to the maxim of Pope Clement, "that it is of little advantage to restrain the "bad by punishment, unless you make them "good by discipline."

But, before considering this, I will discuss as briefly as possible the other theory and practice of punishment and repression, to which I have referred above.

It may be, and has been argued that the State, in assuming the control of an offender, is not bound to become his moral preceptor; and that if it incurred this responsibility, it should, as some philanthropists of our time and country imagine, undertake the cure of vices of all sorts: those which are beyond the pale of penal laws, as well as those which, for the protection of society, it punishes.

There is, however, an essential difference between the two cases. The criminal has, by the crime for which he has been tried and convicted, forfeited his liberty, and with it, during his period of imprisonment, his rights and privileges of citizenship. The State has, therefore, per force become his guardian during the period of his compulsory removal from society, and is bound to discharge the trust in the manner most beneficial to him, and to the society to which he is to be restored on the completion of his sentence.

The vices of the free man, on the other hand, could not be controlled by the State without what we regard in England as a dangerous interference with personal liberty. It is, in my humble judgment, somewhat visionary to attempt to reduce all social relations to a state of constant interference by legal restraints, whilst they can, and ought, on the other hand, to be dealt with by the agency of education, religion, parental control, and the standard of civilisation adopted by every nation, in its domestic and social relations.

The other system is that which I have advocated ever since I became a prison official, viz.: the conversion of prisons into schools of industry, as it steers a middle course between the extremes of all other plans. It fulfils the immediate objects, as well as the ends of imprisonment, and if properly carried out, should relieve the taxpayers of all countries of much, if not most, of the cost of the maintenance of the judicial, police, and penitentiary agencies, necessary for the repression of crime and protection of society.

Influence as discipline.

The character of the labour assigned to convicts must depend upon the objects which it is intended to fulfil. If it be designed simply to be a means of coercion, and to harass, vex, and worry, without any thought of benefiting or humanising the convict, it seems to me that the mere exercise of brute force, or employment in dull, dreary, wearisome, and monotonous tasks, will altogether fail to act as a real deterrent, or to cause the prisoner on his release to regard every form of industry with any other feeling, than one of strong aversion. Moreover, in my humble judgment, and I saw abundant proofs of it during my connexion with prisons, the causation by the plan I object to, of pain, misery, and humiliation, excited feelings of angry resistance, which rendered necessary the infliction of disciplinary punishments, of which I strongly disapproved.

Again, I venture to appeal to the views of the well known

English jurist, Jeremy Bentham, on this point. He says: "The "policy of giving a bad name to industry, the parent of wealth and "population, and setting it up as a scarecrow to frighten criminals "with, is what I must confess I cannot enter into the spirit of. I "can see no use in making it either odious or infamous. I see "little danger of any man liking work of any kind too well; "nor, if by mischance it should fail of providing him in suffering "enough, do I see the smallest difficulty of adding to the hardness "of his lot, and that without any addition to the hardness of his "labour. Do we want a bugbear? Poor, indeed, must be our "invention, if we can find nothing that will serve but industry. "Is coarse diet nothing? Is imprisonment—is loss of liberty in "every shape—nothing? To me it would seem but so much better, "if a man could be taught to love labour, instead of being taught "to loathe it. Occupation, instead of being the prisoner's scourge, "should be called, and be made as much as possible, a cordial to "him. It is in itself sweet in comparison with forced idleness; "and the produce of it will give it a double interest. The mere "exertion, the mere natural energy, is amusement, when lesser ones "are not to be found. Taken in this point of view, industry 'is "a blessing; why paint it as a curse?'"

If a punishment be in excess of the degree of severity sufficient to deter others from the commission of crime, it is not only unjust, but hardens men, and thus defeats its own intention. To torture or torment an individual guilty of a breach of the criminal law, will not undo the crime he has committed; it will not deter others, for he cannot communicate the sensation which he experiences to any one else, in such manner as to enable it to be realised.

Beccaria also says that: "Punishments are to be estimated "not by the sensibility of the individual, but by the injury done "to society, and in all cases those penalties are least likely to "be productive of good effects, which are more severe than is "necessary to deter others." It is the certainty rather than the severity of punishment, which influences the criminal classes.

The best, the surest, and the least fallible of all the proofs of amendment, is afforded by the labour test. So long as a prisoner works well, completes his task in the regulated time, acquires skill as a workman, and is generally well behaved, I am satisfied that his imprisonment is attended with benefit, and that he will not be likely to relapse into crime when restored to liberty. The discipline then of well regulated labour, I hold to be the system most likely to secure the desired end of imprisonment, viz., the just and humane punishment of crime, and the protection of society.

The disciplinary action of prison labour.

6. Assuming that the proper penalty for the conviction of a criminal consists in the necessary, and most of the accessory inconveniences of imprisonment, in what way does prison industry act as a measure of discipline? I have no difficulty, from personal knowledge of its effects, in answering the question. By occupying the whole of the prisoner's time in works of usefulness, which from their regularity, continuance, and the impossibility of evading any portion of the daily task, from any other cause than sickness, must be extremely distasteful, and in entire opposition to the ordinary habits of criminals. That they effectually take all desire for mischief out of those employed in the workshops, was seen in those of my prisons which were well managed. Most of the prisons I refer to were unfortunately not on the cellular system, and, in former times, when work was spasmodic or irregular, and no fixed or continuous tasks were exacted, the moment the wards were locked up for the night, and the prisoners placed in the dangerous association which is the destruction of all moral feeling, there ensued a continuous buzz of conversation which lasted well into the night. At the time the prisons passed from my charge, although the same soul and body destroying association continued, when the convicts were counted, and the doors closed, the silence of sleep stole over the whole place, and scarcely a sound was heard to break the stillness of the night. Tired nature needed repose, and it was at once sought.

Why the question of jail labour is still unsettled.

7. It appears to me to be somewhat singular that the question of prison labour should be still unsettled. I am disposed to think that most of the opposition—outside its economic aspect—to the general introduction of industrial occupations in jails, is founded in the erroneous belief that they are not penal in character, do not afford hard labour, and therefore do not fulfil the intention of the laws. Lord Macaulay, and the Bengal Prison Discipline Committee, of 1838, considered that the labour of prisoners should be dull, monotonous, and wearisome; and many persons suppose that nothing can be regarded as penal labour, that is not associated with severe and sustained muscular exertion.

Upon this point again Bentham says: "That an occupation "is a series of acts of the same kind tending to the same end. "An occupation considered in itself may be painful, agreeable, or "indifferent, but continued beyond a certain length of time, it "will always become disagreeable. This is true of all tasks "without exception, and particularly so of those which are "pleasant at first, and ultimately become more disagreeable than "those which are naturally disagreeable.

" To render the time of a man's occupation agreeable, he must " be able to pass from one to another, according to his taste, all " compulsory occupation is, therefore, painful."

Now, an inseparable condition of all prison labour is that it *is* and must be *compulsory;* that it not only compels the convict to do that which must be distasteful to him, but prevents his occupying his time in any other manner that may be more agreeable. " The net value of the pleasure which an individual loses by a " fixed occupation, is equal to the sum total of all the pleasures he " might be able to pursue, had he been a free agent." Judged by this standard, all prison occupations when continued from day to day in fixed tasks for ten weary hours in dull monotonous succession, must be regarded as penal, however small may be the actual muscular power exerted in each step of the labour. Those which involve great muscular exertion can only be continued for short periods, with intervals of rest. They leave a large margin of unoccupied time, which is about the worst feature that can characterise any description of prison labour. Hence I believe the tread wheel, the crank, the shot drill, and all purely aimless tasks, to be not only a waste of time that might and ought to be devoted to some useful end, but they tend to harden and degrade the individuals subjected to them. The dogged resistance to authority, and the feelings of resentment caused by all such kinds of labour, are destructive of the feelings and influences which lead to reformation. Of the descriptions of labour which act equally in producing physical exhaustion, that which results in some useful work is, and must be of far more use as an agent of reformation, than that which ends in nothing but a wearied frame and an angry heart.

Some years since, it was objected to my system that it was not deserving of the name of hard labour. I, in consequence, instituted a series of experiments to determine the exact amount of muscular power exerted in various prison manufactures.

I found that each convict in the Alipore jail, when fairly skilled as a gunny weaver—an amount of proficiency acquired in a few months — is bound to weave 20 yards of gunny cloth in an ordinary day of ten hours. The work was executed with the hand loom of the country.

Each yard of sackcloth requires an average of 365 threads for weft, necessitating 7,300 pulls of the beam for the full task. Direct experiment showed that each pull required an amount of muscular force equal to lifting a weight of 8 lbs. a foot from the ground. The daily labour of each proficient weaver was thus found to be equal to raising a weight of several tons, a foot from the ground. Several other descriptions of prison labour were found to be equally severe, some of them so much so as to be used only as corrective labour for breaches of prison rules.

I am of opinion then that there is no sound or tangible objection to the employment of prisoners in handicrafts on the ground of their not being disciplinary in character, or providing the hard labour required by the law.

Economic objections to productive prison labour.

8. The second question of the second section is as to the extent in which prison labour is prejudicial to free industry, and how it can be so organised as to avoid, as much as possible, the inconveniences of the competition.

Before an answer to this question can be correctly given, it is necessary to consider the ethical conditions underlying it.

It may be admitted at once that industrial employment in prisons must, and does undoubtedly in a limited degree, come into competition with free labour of the same class; and I maintain that it has a perfect right to do so. Prisons are a charge against the public revenues of every country, and it is just and proper this should be lightened as much as possible.

It seems to me to be wrong in principle, and opposed to all sound maxims of public economy, that the interests of small sections of any community, should be protected injuriously, at the cost of society at large. It should not, moreover, be forgotten that the criminal, had he not taken to evil courses, would himself have competed with others of his own class or trade in the labour market. To teach him an industrial art that will enable him to gain an honest livelihood on release, is merely to restore him to his natural position, and surely it is an unmixed gain to society to convert by this means an unprofitable consumer into a profitable producer. We thereby create nothing new; we merely transform an instrument of evil into one of good. It is not quite certain also that society is not itself in a great measure responsible for some of the evils inflicted upon it by crime and ignorance—twin children of an unnatural parent; and I hold that society, through just and equitable laws, is bound by every principle of morality and self interest to repair the injury, and to prevent its recurrence by every means in its power.

When I was in charge of the prisons of Bengal, the manner of employment of convicts in the Alipore jail in handicrafts, and the introduction of machinery for the purpose, were alleged to interfere injuriously with branches of industry which needed encouragement and protection. The commercial infant which needs such dry nursing must be a puny, sickly child, whom it would be of no permanent interest to the commercial family to rear. Upon the presentation of a petition to the Secretary of State for India, an inquiry was ordered into my proceedings, and

I succeeded in satisfying the Chamber of Commerce in Calcutta, by a personal examination at the Alipore jail, of the groundlessness of the objection, for in all the prisons in the province together, but 5 per cent. of the raw material used were converted into marketable commodities, against 95 per cent. exported to other countries in the raw state.

The introduction of a printing press was also objected to, but this objection was at once withdrawn when it was found that the printing was strictly restricted to work for the State, for few dispute that every State has a right to utilise the labour compulsorily placed at its disposal, in its own service.

Another reason at that time urged, was that "to teach a "criminal an honest trade, and to restore him to society a skilled "workman, is to turn the prison into an artizan's stepping stone "to fortune, and to make the honest labourer anxious to graduate "in the same productive school of industry."

There is a very transparent fallacy contained in this contention. The advantage is remote and uncertain. The pains and penalties involved in compulsory separation from society in strictly regulated task work, in a rigid denial of all the indulgences that sweeten labour and render life agreeable, the terrible monotony of the same walls and the same work day by day, month after month, and year after year; the complete absence of all control over their own acts, the unvarying sameness of the dietary, even if more ample and superior in quality to the homely fare of the honest free labourer; the early resting and early rising in unchanging succession, are immediate, positive, and palpable evils, easily imagined and readily realised. There is then a heavy balance against every well managed prison as a desirable school of industry.

Speaking of Great Britain only, from the resolutions passed at trades union congresses, which represent fairly the views of the labouring classes, I gather the prevailing feeling to be against *unfair* competition of prison labour with free industry, and not against the State supplying its own wants and charitable institutions, at cheaper rates than obtain in the open market. This I think is a perfectly fair objection; I would go even further, and prevent any selling at unremunerative rates at any time, or for any purpose. It is economically unsound. I am quite aware that economic science has not yet obtained a sufficient degree of exactness for its data to be received with unquestioned confidence, particularly by any classes whose immediate interests are supposed to be affected by the operation of any economic law. It is unreasonable to expect that any other interest than self interest will govern the individual or collective actions of any class of those who live by labour, particularly as we now see in nearly all countries how closely all interference with such matters on the part of Governments is watched by the proletariat.

Even supposing the objections to prison as opposed to free labour to be in any way sound, the influence it can exercise in the open market in any country is infinitesimal, from the small numbers engaged, and the exceptional circumstances in which it is exercised.

Legislative intention of labour sentences.

9. The obvious intention of all legislatures in adding labour to sentences for crime is, not only to increase the severity of the punishment, but to mark its sense of the relatively greater moral turpitude of the offence.

A simple misdemeanour, or an offence of any kind that is supposed to inflict a slight injury on society, is visited with a fine or a short term of imprisonment, without labour.

To all offences attended with greater injury to society, and which are associated with a lower moral standard, is added a provision of hard labour. Thus prison labour is at once associated in the public mind with an element of degradation, which is not only injurious, but founded on false principles, as I have already endeavoured to show.

If the motives which lead to the commission of crime could be gauged with precision, and the infinite and obscure combinations of human actions that inflict injury on society could be calculated with any approach to mathematical accuracy, a scale of punishment might possibly be framed that would fit closely each criminal act.

But, as such precision in legislation is impracticable, and, if practicable, would be of doubtful efficacy, it is a matter of concern to all engaged in prison reform to exercise an influence on legislation in their respective countries to prevent the law itself from opposing any obstacles to the reformation of convicts, by judicial sentences. Such an obstacle I hold to be the degradation of labour by the courts, and the addition to the severity of sentences in prison regulations and practice by the enforcement of aimless tasks, and the exercise of mere unreasoning physical strength in cranks, tread wheels, and similar devices. Labour is one of the greatest blessings conferred upon man by the Creator, and the one which, in its continual exercise, lifts him high above all other created beings. To attach a sense of degradation to it in our penal system, seems to me, therefore, to be an error of principle. It is peculiarly so in relation to the criminal classes, because by far the greater number of crimes against property, and no mean proportion of those against the person, originate in the idleness which is the principal motive of both vice and crime. The natural corrective of this idleness, is industry. Hence the importance which the question of prison industry acquires in connection with the administration and execution of the criminal laws.

Indulgences to criminals as the reward of good conduct.

10. The third question of the second section asks what indulgences can be allowed to a convict in the interests of discipline, and particularly to what extent he can freely dispose of any portion of his earnings.

This question was very carefully considered in framing the regulations of the Bengal jail code, in which a special section was devoted to rewards for well conducted convicts.

The chief indulgences shown were in placing them in subordinate positions of trust and confidence in the prison, which carry with them a relaxation of the discipline to which they were previously subjected, and by which the inculcation of habits of subordination and self-control could not fail to be of use to them on release.

As respects the disposal of a portion of their earnings, all convicts of long sentences, or term prisoners, were allowed 50 per cent. of the estimated value of their overtime work, to be paid to them on release. For life prisoners a similar amount was allowed to be expended, at the discretion of the officer in charge of the prison, in the purchase of additional food, clothing, or any such harmless indulgences as would not interfere with the good order and discipline of the jail. (Rule 17.)

I am of opinion that it would, from its liability to abuse, neither be safe nor prudent to go further than this in the same direction.

The employment of convicts as prison officers is, I believe, if not altogether, to a great extent unknown and unpractised in Europe. It worked well so long as I was in charge of the prisons of Bengal, and if properly practised, with the requisite extreme care in selection, would be an instrument of great use in the maintenance of good discipline. No such prison subordinate officer was ever known to return to jail after release, by relapsing into crime, in my time. I do not hold myself responsible for anything which has happened in relation to those prisons since my departure, as a different theory of prison discipline was entertained by the next ruler of the Province, and carried into effect under his orders.

Is the State control of prison labour preferable to farming it out as a commercial enterprise?

11. The first question of the second section, that of the relative value of responsible or State control of prison labour, as compared with the farming out of such labour as a commercial enterprise, is a matter of which I have no personal acquaintance, and must speak of therefore with all reserve.

I can imagine no system so absolutely erroneous in principle, and so subversive of everything deserving of the name of maintenance of order and discipline in a prison, than the admission of any portion of the outside public within its walls, with the authority which they must be allowed to exercise over the labour and employment of convicts on a contract system. It is difficult enough, as it is, to maintain order, prevent irregularities, and render prison regulations effective, by the rigorous exclusion of private enterprise in such a matter. It would, in my humble opinion, be absolutely impossible to introduce a contract system, which would necessarily carry with it some sort of personal supervision, without opening a flood gate of abuse, which would render nugatory any plan of discipline which has yet been invented or tried. The very first rule of the Bengal code regulating the labour and employment of convicts declared imprisonment to be intended for punishment, and therefore that the first thing to be looked for in labour was not that it should be remunerative, but that it should render a residence in jail a matter of dread, apprehension, or avoidance.

The practice of placing the labour of convicts at the disposal of private persons was forbidden by a circular order of the Government of Bengal, issued so long back as 1852.

I have appended to this paper the two sections of the prison rules enacted in 1864 in Bengal, a quarter of a century ago, regarding the regulation of prison labour and the bestowal of rewards for good conduct in jail. They were advisedly drawn up in advance of the means of enforcing them in their entirety, because they were intended to establish a standard to be aimed at, when the means were at hand to apply them with effect. The chief value of the whole body of these regulations now is to show how completely all these matters were then thought out, and to prove how thoroughly they are in accord with the principles of Howard, the views of our prison congresses, and as respects prison industry, the legislative enactments upon which the regulation of our prisons at home is now based. In all countries then in which prison labour in industrial pursuits is enforced as an instrument of discipline, or for any other purpose, special rules, adapted to local circumstances, should, I think, be laid down for its proper regulation. This should, in my opinion, never be left to the discretion of the officer in charge of the prison. Such discretionary powers are always liable to variation, which may or may not be injurious in character, but are invariably a source of difficulty to all conscientious officers, and are seldom or never satisfactory in their results.

There is much, of necessity, in rules framed for Indian prisons that is not adapted for such institutions in Europe. It is only for the principles of action contained in them that I contend, for such principles, if correct, must be based on those motives and feelings which are common to all nations and are universal in their incidence, whether in fair skins or dark skins, in high or low forms of civilisation. They are the motives of world wide benevolence and philanthropy, of which John Howard was an apostle and exemplar.

History of the question of prison labour.

12. Having given the views of some of the greatest thinkers on the ethics of the question, Bentham, Beccaria, and Herbert Spencer, as well as remarked on the questionary of the late Prison Congress, a brief historical review of the labours of the workers in the reduction to practice of the ethical precepts inculcated, will show how far they are correct in their application to the management of prisons, and effective in securing the chief ends these institutions are intended to serve. The data being thoroughly reliable, and the beneficial results beyond dispute, they may fairly be considered to settle a question, which is still a subject of discussion with those, a fast diminishing number, who continue to believe in the doctrine of hard fare, hard labour, and harsh treatment, as the measures best calculated to repress crime, reform criminals, and protect society.

For our own country the steps, legislative and executive, by which the present excellent state of the prisons of Great Britain has been attained, are so well, succinctly, and clearly passed in review in the work on the punishment and prevention of crime, by Sir Edmund Du Cane, in the series of publications known as "The English Citizen," as to render it necessary only to refer to the remarkable little volume in which they are contained. I am familiar with most of the literature devoted to such subjects, and I have no hesitation in placing the condensed and lucid contribution of the present superintendent and distinguished chief of the prison department of England at the head of them all. With some of the minor details of the home system I am however somewhat at issue, and I consider that too much credit is given to the supposed deterrent effect of the discipline enforced as a chief cause of the undoubted diminution of crime.

For the rest of Europe, the analyses by the late Dr. Wines and Mr. Pears, of the transactions of the Prison Congress of London, held in 1872, are the most condensed and reliable authorities known to me. The subsequent Prison Congresses have thrown some light on the question, but cannot be compared with the first of the series in the practical results following them. There is too great a tendency in these bodies to indulge in a lavish profusion of academic essays, which are valuable enough in their way, but enunciate no new principles of action, record no such results as have been attained in England, and leave matters very much as they find them, in ponderous tomes, which few, if any, have leisure to wade through in the high pressure life of the times in which we live.

The question of the employment under sentence, of prisoners in India, has for many years past been much and carefully considered in that great empire, and what is known there respecting it is so little known and appreciated here, that I desire, as the last occasion on which I shall ever have, to refer to it again somewhat in detail, as showing how far those of us charged with the immediate government of Indian prisons were in advance of public opinion at home, although we had not the means of giving full effect to our views, from causes over which we could exercise no personal control.

Prior to 1838, as stated in my report on the prison system of India, contained in the transactions of the Penitentiary Congress of 1872, the chief occupation of prisoners sentenced to labour was extra-mural, either in making roads or in station improvements. In the former they were employed in great gangs, were encamped or hutted, and were in charge of engineer officers. In the latter they were under the immediate control of the district magistrates. Such employment was found to be a most unhealthy proceeding, to be liable to, and attended with much abuse; was characterised by an entire absence of penal discipline; and whilst of questionable advantage to the State, was abundantly detrimental to the criminals.

The intra-mural employment of convicts was originally one likewise of much abuse—such as to lead the Prison Discipline Committee of 1838, presided over by Lord Macaulay, to recommend the cessation of out-door work, and the general introduction of in-door labour in dull, wearisome, monotonous tasks, the evident intention of which was to inflict as much of pain as could be borne without injury to health, which latter condition however no great pains were taken to gauge or prevent. Among other devices, tread wheels and cranks were introduced tentatively; but they failed, and were soon abandoned. At that time the doctrine of making prisons a terror to evil doers by measures of undeviating severity was in full force, and reformation altogether ignored.

In 1843, the introduction of remunerative industry in Indian prisons was enjoined by the government of Lord Ellenborough. Rules for its correct performance were enacted and observed, and the results were so successful that in 1856, shortly after being placed in charge of the prison department, I was able to organise an exhibition of jail manufactures in Calcutta. Thirty-six prisons in the lower provinces, and ten in the north-western provinces, contributed to the exhibition. The articles exhibited were cotton cloths, carpets, blankets, horse clothing, gunny cloth, paper, carpentry, iron works, bricks and tiles, bamboo and reed fabrics, pottery, shoes, and a few other articles. With a few exceptions the exhibits were the ordinary manufactures of the prisoners, the exceptions being fabrics of finer qualities, specially made as samples of the skill attained by some convict workmen, but for which there was no local sale.

Some of the convicts were members of different crafts prior to imprisonment, and were proficient workmen, but the greater number were agriculturists, who had no prior knowledge of any handicrafts, and were taught entirely in the jails. The Sonthals, an aboriginal tribe of central Bengal, became skilled weavers; the Thugs attained celebrity as carpet weavers, dyers, and tent makers in the industrial prison of Jubbulpore; and numerous other prisoners entirely ignorant and uninstructed, attained remarkable skill as printers, lithographers, paper makers, brick makers, potters, carpenters, blacksmiths, and masons.

The exhibition was visited officially and reported on by the Chamber of Commerce of Calcutta, of which the President at the time was the Consul-General of America, and they were agreeably surprised by the extent and variety of the exhibition, and the quality and perfection of workmanship exhibited by several of the articles. They made a suggestive report, the outcome of which was to recommend the establishment of a trade museum in Calcutta, to assist in the development and extension of the industrial and commercial resources of British India, a precursor of the Imperial Institute. The occurrence of the Sepoy mutiny a few months afterwards caused the non-fulfilment of these proposals, and they have not since been revived in India, so far as I know.

In my own report to the Government on the exhibition, I indicated the principles which should regulate prison industry as an instrument of punishment, reformation, and profit, and I followed them up, as far as the means at my command permitted, during the whole subsequent tenure of my office. They were, that convict labour should be penal, profitable, and reformatory; that it should be strictly intra-mural work, controlled and directed by special officers; that every prisoner sentenced to labour should be made to repay to the State as much as was practicable in each case, of the cost of his punishment in jail; and that prisons should be made as much as possible schools of industry, without any relaxation of the justifiable severity of discipline, and as combining more completely than any other system in use, the punishment of the offender with the protection of society.

The mention of the above matters outside of the official reports, which are unknown in England, is contained in the "Journal of "the Society of Arts of London," for February, 1872, prior to the holding of the Prison Congress in the same year, and is noticed by the late Dr. Wines at p. 96 of the *Compte Rendu* of the Penitentiary Congress of Stockholm, held in 1878.

There have been two other exhibitions of prison manufactures: one at Rome, the other at St. Petersburgh.

In 1864 a second special Prison Commission was appointed, during the vice-royalty of Lord Lawrence, to consider the whole question, on the ground that the full measure of improvement contemplated, and to which the Government was pledged, had never been carried out. Of this Commission I was a member. Its recommendations referred to juvenile delinquents and reformatories; female prisoners and their treatment; the non-deterrent nature of the existing system, as shown by the great number of reconvictions; the length of sentences as tending to nullify their effects; the want of settled principles of jail management; the necessity of a graduated system of labour, punishment, and rewards; the massing together of criminals in central prisons; the applicability of the ticket-of-leave system to India; the removal of the causes of the great sickness and mortality; the education of prisoners, and prison statistics.

The only points of special interest in connection with the present paper, are those regarding the want of settled principles of jail management; and the necessity of a graduated system of labour, punishments, and rewards.

A special sub-committee, consisting of myself, Surgeon-General J. P. Walker, and the late Dr. Farquhar, was appointed to report upon the subject of a jail manual for all India, and upon the adoption of a uniform system of returns of all details of prison administration. My own rules for the prisons of the province under my charge were taken as the basis of our inquiry. In them several details were modified, but the leading principles contained in them were unchanged. These rules again were subject to the scrutiny of two other special committees of judicial officers, and finally of the Government of the Province, when they were embodied in a legislative Act: Act II (B. C.) of 1864.

Before concluding this brief historical record, I deem it right to record an example of the successful application of the true methods of treating crime and criminals which preceded by many years the investigation of the question by Lord Macaulay's Commission in 1838, and the action of the Government of India in 1843. In the interesting and valuable account of transportation contained in the fifth chapter of Sir Edmund Du Cane's work, the reason of the failure of the system in all but one portion of the Australian colonies is clearly pointed out.

In 1851 I visited the Straits Settlements, then under the rule of my friend Sir Orfeur Cavenagh, and found in existence a system of industrial training of convicts superior to anything we had at that time on the continent of India. It was said to have been inaugurated by the celebrated Sir Stamford Raffles in 1825, when Singapore was first selected for the transportation of convicts from India, and to have been subsequently organised and successfully worked by General H. Man and Major F. McNair. The ticket-of-leave system was in full and effective operation, and very important public works were constructed by means of convict labour, chief amongst them St. Andrew's Cathedral, a great system of waterworks, a palace for the Governor, and most of the roads of the province.

The ticket-of-leave convicts were said to be a well conducted industrious lot, who very rarely committed fresh crimes, who all earned an honest livelihood, and were regarded as respectable members of the community amongst whom they dwell.

The public works were creditable examples of prison industry and skill. St. Andrew's Cathedral, built by Major McNair, of the Madras Artillery, from plans prepared by Colonel Macpherson, entirely with convict labour, struck me as one of the finest specimens of ecclesiastical architecture which I had seen in the East, and I believe there exists in no other country a more remarkable example of the successful industrial training of convicts. Photographs of some of the works referred to are on the table.

Industrial statistics of the prisons of Lower Bengal for the five years 1861-65 inclusive.

13. I will now submit to you a brief analysis of the work accomplished in the prisons of Bengal during five consecutive years of the latter period of my direction of those institutions. I collected them with special care to secure accuracy in all the figures connected with every branch of prison administration considered necessary in the department of judicial statistics by the International Statistical Congress held in London in 1860, under the presidency of the late Prince Consort, and I selected the years 1861-65 because I had then got the department into fair working order so far as the instruments and agencies at my disposal permitted.

Number and classes of prisoners in the jails during the above-mentioned years.

14. The whole number committed to prison during that period was 302,274, as shown in the subjoined table:—

	1861.	1862.	1863.	1864.	1865.	During the whole Five Years.
Committed to jail by the magisterial authorities of the district	36,832	44,945	46,383	49,832	56,709	234,701
Committed by order of civil, revenue, and abkharry authorities of district	1,112	1,776	1,896	2,375	2,694	9,853
Committed under sentences of courts martial	26	47	28	40	35	176
Committed under special orders of Government	—	3	9	12	73	96
Committed by Dacoity Commissioners	299	179	—	—	—	478
Recaptured after escape in previous years	131	145	142	155	136	709
Transferred from one district to another	591	535	585	408	222	2,342
Total committed	38,991	47,630	49,044	52,822	59,868	248,353
Transferred for confinement	—	—	338	2,001	3,033	5,642
,, banishment	968	998	56	—	—	2,002
,, transportation	741	495	971	1,021	1,384	4,612
,, benefit of health	65	237	32	9	7	350
,, release	229	290	266	346	185	1,316
,, special reasons	453	641	713	10	18	1,835
,, after recapture	14	14	21	26	9	84
,, sub - divisional lock ups	7,049	7,195	7,355	6,503	7,070	35,172
In transit from one district to another	116	635	760	622	773	2,906
Total removed by transfer	9,635	10,505	10,492	10,538	12,745	53,919
Total admitted	48,626	58,135	59,536	63,360	72,617	302,274

Of the above 302,274 prisoners, 291,761 were males, and 10,513 females, or in the proportion of 28 of the former to 1 of the latter.

As respects religion, 181,073 were Hindus, 109,628 were Mahomedans, and 3,181 were Christians. The remainder were of various denominations, which it is worth while to enumerate now that the census returns of Bengal are becoming more exact and minute, as they will admit of determining, with greater precision than has been heretofore possible, among what classes or sections of the population crime is increasing or diminishing. They also exhibit the strange multitudes, speaking many tongues, and representing divers forms of civilisation, which people our Indian prisons.

They were:—

Sonthals	1,637	Bhutiahs	263	Meerees	23
Coles	923	Konchs	249	Lodaks	20
Cacharees	874	Burmese	166	Rubbahs	15
Garrows	874	Khasiahs	139	Arabs	13
Mughs	830	Meekirs	77	Ghonds	11
Hill Men	750	Kapemlos	63	Khonds	10
Nepaulese	508	Koshs	52	Lalocoongs	8
Ahoms	491	Chinese	44	Hadjees	9
Dhangas	305	Madrasses	37	Jew	1

Of the above 302,274 prisoners there were—

Released from all causes during the quinquennium	230,003,	or 70·53	per cent.
Escaped	1,232	,, 0·37	,,
Died	6,790	,, 2·09	,,
Executed	266	,, 0·08	,,

In all 73·07 per cent. were discharged, and the remainder, amounting to 26·92 per cent., remained on the last days of the several years, making a grand total of 388,136 prisoners.

Of the prisoners convicted of crime, 11,447 were for terms carrying with them labour sentences, and 84,614 had short terms of imprisonment, extending to a year, which exercised an adverse influence on their industrial employment.

I hoped to have been able to reproduce the tables in my official report showing the daily average numbers in each prison engaged in the several branches of industry practised—35 in number—but it was impracticable to reduce the tables to the dimensions required by our small 8vo. pages.

The greatest numbers were employed in weaving coarse and fine cloths, blankets, towelling, and carpets, brick making, carpentry, printing. Every prison contributed something, however small, to the general result.

Before proceeding to record the industrial and financial results of the quinquenniad, I wish to make special mention of the origin of the system of appointing well conducted prisoners to offices of trust and responsibility in the jails of Bengal.

It was inaugurated originally by a distinguished civilian, the late Mr. Samuels, in the Alipore jail, of which he was at the time the magistrate in charge, and I found it in effective operation when the control of the prison department was entrusted to me. The original intention of the measure was to have a trustworthy agency to look after the most troublesome and refractory prisoners when locked up at night. The plan had succeeded so well, that I obtained the sanction of the Government to its general introduction in the other prisons of the province. In 1861 the number so employed was 153, and they were without exception well conducted.

The statistics of the working of the measure for the four succeeding years are contained in the subjoined table:—

1861 to 1865.	Number of Prisoners Employed as				Sex.		Conduct.					Ratio per Cent. of Total Employed to Mean Population in Jail.	Ratio per Cent. of Well Behaved to Total Number Employed.	Ratio per Cent. of Ill Conducted to Total Number Employed.
	Work Overseers.	Warders.	Guards.	Total.	Males.	Females.	Very Good.	Good.	Bad.	Indifferent.	Very Bad.			
1861......	No	details		153	153	—	—	153	—	—	—	0·94	100·00	—
'62......	50	142	157	349	349	—	—	349	—	—	—	2·00	100·00	—
'63......	90	255	269	614	611	3	16	481	114	—	3	3·42	80·94	19·06
'64......	222	310	155	689	676	11	49	589	25	24	—	3·77	92·87	7·13
'65......	326	310	173	809	806	3	43	669	73	4	20	4·29	88·01	11·99
Total ...	688	1,017	754	2,612	2,595	17	108	2,211	212	28	23	2·94	89·93	10·07

Of the convict guards, work overseers, and warders 90 per cent. were well conducted. The 10 per cent. who proved unsteady were prisoners who ought never to have been selected, and who owed their position to the corruption of the jailers, and the negligence of the officers in charge, who allowed the selection to fall into the hands of their subordinates. As a measure of economy the plan had proved eminently successful, and as a measure of reformation I was satisfied it had been attended with good effects up to the time I was in India. All those who were degraded for misconduct felt the disgrace keenly, as I ascertained during my inspections, from the earnest manner in which they pleaded to be reinstated, on the ground that they had been wrongfully charged with misdeeds not committed by them.

Now that the prisons in England have been placed under the control of a responsible prison board, uniformity of system, a graduated scale of labour, rewards, and punishments have been introduced, I see no reason why the plan should not be tried at home. It would, I am satisfied, be attended with success, as a mode of recognising the advantages of obedience and industry, and as a means of inculcating habits of self-control and self-reliance, such as could not fail to be useful to those who had passed successfully through the ordeal, when restored to liberty.

The rules on the subject of rewards to well-conducted convicts, extracted from the Bengal jail code, are contained in the Appendix.

I also introduced, and the Government under which I served sanctioned, in the jail code above referred to, a tentative plan of intermediate improvement, so far as it could be adopted without cellular prisons, based somewhat upon that of Sir Walter Crofton, which I had seen in operation in Ireland.

The privilege in 1865 was only granted to six of the 20,000 inmates of the prisons. One of them was an European. Four of them had been work overseers or convict guards, and two had long discharged the duties of clerks in the offices of their jails. The reports of the officers in charge of their respective prisons stated that their conduct was unimpeachable during the period of probation, that they fulfilled faithfully the conditions imposed on them, and that the scheme had already produced good effects on the other prisoners in stimulating them to good conduct and increased industry.

Industrial and financial statistics.

15. These I collected with great care, and in considerable detail to secure accuracy, and to throw a light upon the efficacy of the plan which I then considered, and still believe, to be best adapted for the threefold purposes of imprisonment, viz., the punishment of crime and protection of

society, the reformation of the offender, and his restoration to society a wiser and better man, and the repayment of as much as could be effected by prison industry of the cost to the State of the maintenance of prisons and the expensive agency connected with them.

The motives which guided me, when by personal examination of the prisoners and institutions under my charge I was able to form a judgment on the subject, were—

1st. That idleness was the chief cause of by far the greater part of the constant war upon property waged by the habitually criminal classes.

2nd. That ignorance is the inseparable companion of idleness, and its great ally crime.

3rd. That as respected the inhabitants of Bengal generally, ignorance, superstition, and a low standard of morality, combined with ethnological conditions imperfectly known, because little studied, were the exciting causes of the majority of crimes against the person.

Except in the case of Thugs, and probably of professional prisoners, the habitually criminal classes in my circle of superintendence were those who preyed upon property without acts of personal violence, unless when disturbed or resisted in their proceedings, or when likely to be identified.

Those engaged in affrays attended with homicide, murder from jealousy, revenge, and other uncontrolled passions, and all criminals guilty of such like crimes, formed a very small proportion of the inmates of my prisons. The number of persons sentenced to be executed in the five years 1861-65 was 147, viz., 138 men and 9 women, which is very small amongst a population of 60 millions, in some sections of which human life is held in little regard, and the temptations to acts of lawless violence are very great.

Ninety per cent. of the prisoners were men who would not work, who sought the means of gratifying their evil passions by theft and fraud, and to whom continuous labour in any form was utterly distasteful.

The correction of this condition appeared to me to be compulsory labour, and I early ascertained that the maintenance of discipline was strictly consistent with the conversion of prisons into schools of industry. The teaching of handicrafts and the formation of habits of industry, supplemented by a humane and judicious system of rewards and punishments, constituted in my judgment the best and soundest measure of reformation in a country where religious influences cannot be brought to bear as an instrument of correction upon character and conduct.

It was charged against this system that punishment was subordinated to reformation, and that both were sacrificed to profit from the labour of the convicts.

I then pointed out that I regarded punishment and reformation as standing very much in their relation to each other as curative and preventive measures in medicine. The former only acts as pain does, on the individual; the latter may influence whole communities. This view I hold to be in strict accordance with the recent legislation of most countries on the subject of prisons and prisoners. The infliction of mere physical pain and personal suffering had long been abandoned in the taming of animals, and was still less applicable to the treatment of the moral disorders which make prisons a necessity of civilisation.

Of two descriptions of labour which act equally in causing physical exhaustion, that which resulted in a marketable commodity I considered to be of far more use as an instrument of reclamation, than that which was an entire waste of physical power.

If calculated in the manner known to physiologists, for example, the weaving of coarse fabrics, press work, and other remunerative hard labour were found by direct experiment at the end of a long day's work, to have caused as much wear and tear as the treadwheel and the crank. The dogged resistance to authority and the feelings of resentment produced by all aimless descriptions of labour are altogether destructive of the feelings and influences that lead to reformation. The conversion of a hardened offender, who is really an unproductive consumer, into a productive self supporter, as I have already stated, is no mean result obtained from the teaching of a handicraft which will enable a prisoner to earn an honest livelihood on release.

Of the prisoners with labour sentences, numbering 114,447, 88,614 were for short terms extending to a year. These were of necessity put to simple tasks, in which no training or mechanical skill was needed. Of those sentenced for long periods a daily average of 258 were employed in the Alipore Jail Press. The disposal of the remainder is shown in Table II of the Appendix.

About 60 per cent. were employed in handicrafts or in garden cultivation, nearly 10 per cent. as jail servants, and 2½ per cent. as convict warders and work overseers, for whom no money charge was credited. A very small proportion were engaged in out-door labour and on public buildings, nearly 5 per cent. were constantly sick, and an average of 12 per cent. were unoccupied on Sundays and holidays.

The handicrafts pursued were chiefly weaving of cloth, blankets and gunny, carpentry, smiths' work, brickmaking, pottery, paper making, oil pressing, printing, lithography, and bookbinding.

The most remunerative of all the industrial occupations was the printing carried on at the Alipore Jail Press, in which the greater part of the form work of the Government of Bengal was performed at a slightly lower rate than the ordinary charges of private printing presses. The rates were fixed by a committee, consisting of myself, the leading private printer of Calcutta, and an officer of the Government secretariat, who was a practical printer.

After paying all charges, including the cost of type, presses, chases, &c., the net profit realised in the five years was estimated at 79,000*l.*, as detailed in Table V of the Appendix.

The general out-turn of the quinquenniad realised a net profit of 193,000*l.*, which was returned to the State by the utilisation of the labour of 63 per cent. of the prisoners sentenced to rigorous confinement.

The Alipore and Hooghly jails were continuously self-supporting. The prisoners employed in six other prisons earned more than the cost of their maintenance.

Including the cost of constabulary guards, the repairs and additions to the buildings by the public works department, and the cost of general superintendence, added to the actual outlay for the maintenance of the prisoners under all other heads of charge, was 56 rupees, and the net cost 30 rupees, or 5*l.* 12*s.* and 3*l.* respectively —the rupee being at that time calculated at 2*s.* All the particulars connected with these results are contained in Tables VI and VII of Appendix A.

All this was realised with a very defective construction of many of the prisons, and in many places no markets for the sale of such of the products of prison industry as were not utilised in the prisons themselves. The defects were all duly reported to the Government as they came under observation, in accordance with a stringent order of the Lieutenant-Governor of the time, Sir J. P. Grant, to the effect that "it is only by frequent and thorough "inspection, and by an unsparing exposure of all defects in jails, "that a strict observance of rules can be enforced, and that the "Government can be kept aware of what is required on its part "to bring the system and practice in every jail up to the proper "standard."

The analysis of the occupation of the 302,000 prisoners confined in the five years, contained in Table I of Appendix A, shows the very unpromising nature of the material which had to be trained to industrial pursuits.

Sections 3 and 4 of the rules exhibit the classification of labour, and the proportion of the class of labour assigned to each class of prisoners according to sentence, in order that those sentenced for short terms, usually first convictions, and for minor offences, should be deterred from offending again.

16. So far as I had the means of judging from the reports of those of the officers of the department who took an interest in the matter, very few of the convicts who became skilled artizans or had served as prison subordinates ever returned to the jails in which they were trained, or committed fresh crimes. The means we then possessed of identification were confessedly imperfect, but I had no reason to doubt the general accuracy of the information furnished to me.

Conclusion.

The maintenance of discipline was accomplished without inhumanity, so far as I could ascertain in my inspections, but disciplinary punishments were much too frequent, and chiefly caused by the insecurity of many of the prisons. A more liberal policy in dealing with this difficulty by placing more funds at the disposal of the local governments was shortly afterwards inaugurated by the late Lord Mayo.

It was originally my intention to have considered together the ethics of crime and punishment, so as to trace the connection of the career of the convict with the crime committed by him, the punishment suffered by him, and the means best adapted for his restoration to society when a free man. I found, however, that it would be impossible to adopt this course from its unmanageable extent, and the absence of the details necessary to its right understanding in the case of most crimes. I found also that the specific and detailed information required for gauging the efficacy of the means employed by prisoners' aid societies, prison missions, and police supervision, to prevent relapse into crime, were non-existent. The main object of discipline in prison is to render the convict self-reliant, and to furnish him with the means of working out his own redemption when he has regained his freedom, so as to prevent his relapse into crime. Is it quite certain that the effect of much that is done for him by well meaning philanthropy is not more or less antagonistic to this, and calculated to cause him to rely more upon others than upon himself? This, I think, should be clearly ascertained in the only manner in which such questions can be determined. I am unable to undertake it, hence I advisedly restricted my contention to the interior of the prisons.

With these remarks I take my final leave of a question which occupied so many years of my official life, in the performance of responsible and onerous duties, in the which I invariably received the cordial support and approval of the authorities under whom I served.

APPENDIX A.

TABLE I.—*Analysis of the Occupations of the Prisoners admitted to the Jails and Lock-ups of the Lower Provinces, during the Quinquennial Period* 1861-65.

Of the 302,274 admissions into the jails of the Lower Provinces during the quinquennial period 1861-65, there were as regards occupation prior to imprisonment :—

Agriculturists	206,974
Coolies	46,551
Shopkeepers	11,574
Chowkeedars, peons, and other watchmen	3,486
Seamen, boatmen, manjees, &c.	3,041
Weavers	3,032
Servants	2,901
Beggars	2,344
Fishermen	2,014
Writers, mohurers, gomastahs, sircars, &c.	1,994
Zemindars, talookdars, landholders, &c.	1,769
Milk sellers	1,753
Shoemakers	1,190
Carpenters	1,077
Basket makers	965
Priests	961
Washermen	728
Barbers	707
Methers	649
Blacksmiths	600
Goldsmiths	546
Prostitutes	491
Oil sellers	464
Shepherds	432
Tailors	400
Domes	373
Durwans	369
Sepoys, soldiers	353
Toddy sellers	311
Koberajes, native doctors, compounders, &c.	280
Bhandaries	259
Cooks	245
Mason, bricklayers	213
Firewood sellers	215
Songsters, dancers, musicians, nugdies, &c.	193
Brokers	191
Malies, gardeners	178
Ghatwals	158
Butchers	141
Cowherds	120
Potters	115
Jewellers, goldsmiths	109
Undertakers	97
Saltpetre manufacturers	89
Budmashes or vagrants	85
Woodcutters	84
Mooktears	83
Grass cutters	80
Bheesties	79
Printers, compositors, pressmen	73
Lattials, pulwans	69
Dufteries	62
Ghuramies	60
Artisans	57
Engineers, engine drivers, tindals, firemen	54
Tinsmiths	47
Salt manufacturers	45
Teachers, moonshees	44
Blanket makers	42
Punkha sellers	39
Beetle sellers	34
Overseers	26
Churundars	26
Vegetable sellers	24
Midwives, dáis	23
Hatmakers	23
Confectioners	23
Painters	23
Sawyers	22
Braziers	22
Dyers	22
Umbrella sellers	21
Lunatics (occupation unknown)	21
Belders	20
Fukeers	19
Bakers	19
Dewans	18
Poets	17
Goraits	14
Drummers	13
Markmen	13
Distillers	13
Sailmakers	13
Bookbinders	11
Scholars	11
Money lenders	10
Gilders	9
Stone cutters	9
Sugar manufacturers	7
Lamplighters	7
Sirdars	7
Idol makers	7
Stationmasters	6
Farriers	6
Stewards	6
Postmasters	5
Fortunetellers	5
Gasfitters	5
Tea planters	4
Opium and gunja sellers	4
Signallers	3
Sunkho (shell) sellers	3
Coopers	3
Princes	2
Mountebanks	2
Tobacconists	2
Banker	1
Boilermaker	1
Pleader	1
Preventive officer	1
Slave	1
Stamp vendor	1
Nujeel	1
Astrologer	1
Indigo planter	1
Captain of a ship	1
Clockmaker	1
Musalchee	1
Gunner	1
Hatmaker	1
Jockey	1
Editor	1
Total	302,274

Of the above, 181,073 were Hindoos; 109,620 Mahommedans; Christians, 3,181; the remainder, between 6.000 and 7,000, were of various denominations, including Chinese, Burmese, Nepalese, and some aboriginal tribes.

TABLE II.—*Disposal and Employments of the Prisoners.*

Employment of Prisoners.	1861-62.		1862-63.		1863-64.		1864-65.		1865-66.		During the Quinquennial Period 1861-62—1865-66.	
	Daily Average Strength.	Ratio per Cent on Average Strength in Confinement.	Daily Average Strength.	Ratio per Cent on Average Strength in Confinement.	Daily Average Strength.	Ratio per Cent.	Daily Average Strength.	Ratio per Cent.	Daily Average Strength.	Ratio per Cent.	Daily Average Strength.	Ratio per Cent. on Average Strength in Confinement.
Employed in ordinary manufactures— Manufactures .... Garden	7,819 824 } 8,643	58·65	8,397 867 } 9,264	59·88	8,312 921 } 9,233	61·50	8,889 582½ } 9,472	62·21	8,303 1,126 } 9,429	59·30	41,720½ 438½ } 42,159	60·30
Employed in the Alipore Jail Press	204	1·38	246	1·59	269	1·79	281	1·84	290	1·82	1,290	1·69
Hired by the Department of Public Works	143½	0.97	65	0·42	30	0·20	51¼	0·34	377	2·37	665¾	0·87
Hired by other departments..........................	348¼	2·36	358	2·31	300¾	1·94	166¼	1·09	93	0·58	1,268·75	1·67
Employed as jail servants	1,704	11·56	1,425	9·21	1,283	8·55	1,388	9·12	1,407	8·85	7,027	9·44
,, work overseers, warders, and guards	141·25	0·96	290	1·93	450·75	3·03	480	3·15	565	3·55	1,936	2·54
Employed on the roads ...	104	0·71	38	6·25	95	0·63	73	0·48	27	0·17	337	0·44
,, miscellaneous duties	769	5·22	713	4·61	437	2·91	395·50	2·60	682	4·29	2,995·50	3·92
Employed in light work, weak, old, and convalescents	—	—	194	1·26	263·75	1·78	234	1·54	226	1·42	917·75	1·20
Inefficient from age..........	298	6·20	773	4·99	819	5·45	589	3·87	633	3·98	3,727	4·83
Excused labour on Sundays and holidays	1,469	9·97	1,770	11·44	1,760	11·73	2,004	13·16	2,045	12·84	9,045	11·85
Total	14,737	100·00	15,472	100·00	15,013	100·00	15,225	100·00	15,902	100·00	76,349	100·00

TABLE III.—*The Out-turn of the Five Years.*

	In 1861-62.		In 1862-63.		In 1863-64.	
	Prisoners—204.		Prisoners—246.		Prisoners—269.	
	R. A. P.	R. A. P	R. A. P.	R. A. P.	R. A. P	R. A. P.
tal out-turn of the years		2,89,426 8 6		2,25,128 4 –		3,32,584 15 6
lue realised out of outstanding amounts......	1,10,536 7 6		20,110 1 10		1,17,313 – 9	
lance of outstandings ...	36,715 11 6		64,824 9 9		—	
lue of stock in store at the close of each year......................	18,698 5 –		6,199 5 1		4,018 14 6	
		1,65,950 8 –		91,434 – 8		1,21,331 15 3
Gross out-turn		4,55,377 – 6		3,16,562 4 8		4,53,916 14 9
duct charges..............		83,519 8 3		81,863 1 8		1,09,760 10 –
Net out-turn		3,71,857 8 3		2,34,699 3 –		3,44,156 4 9
duct amount unrealised at the close of each preceding year...	1,47,252 3 –		85,234 11 7		1,17,313 – 9	
lue of stock in store at the close of each preceding year	15,000 – –		18,698 5 –		6,199 5 1	
		1,62,252 3 –		1,03,933 – 7		1,23,512 5 10
Net profits...............		2,09,605 5 3		1,30,766 2 5		2,20,643 14 11

	In 1864-65.		In 1865-66.		During the Quinquennial Period 1861-62 to 1865-66.	
	Prisoners—281.		Prisoners—290.		Prisoners—1,290.	
	R. A. P.	R. A. P	R. A. P.	R. A. P.	R. A. P.	R. A. P.
tal out-turn of the years		1,50,522 12 3		1,50,239 1 4		10,21,345 14 –
lue realised out of outstanding amounts......	19,712 14 3		9,824 4 9		2,77,826 13 1	
lance of outstandings ...	—		—		—	
lue of stock in store at the close of each year........	—		1,712 5 2		1,712 5 2	
		19,742 14 3		11,536 9 11		2,79,539 2 3
Gross out-turn		1,70,265 10 6		1,61,775 11 3		13,00,885 – 3
educt charges...............		37,207 8 11		32,180 11 3		3,44,531 8 1
Net out-turn		1,33,058 1 7		1,29,595 – –		9,56,353 8 2
educt amount unrealised at the close of each preceding year...	15,723 15 9		9,824 4 9		1,47,252 3 –	
alue of stock in store at the close of each preceding year	4,018 14 6		—		15,000 – –	
		19,742 14 3		9,824 4 9		1,62,252 3 –
Net profits...............		1,13,315 3 4		1,19,770 11 3		7,94,101 5 2
			Average earning per prisoner		....	615 9 3·8

TABLE IV.—*Value Realised from the Work.*

	In 1861-62.			In 1862-63.			In 1863-64.		
	R.	A.	P.	R.	A.	P.	R.	A.	P.
Value of manufactured articles sold, for which money was realised and paid into the Treasury	3,76,129	15	7¾	3,85,731	11	7½	4,01,223	–	1¾
Value of manufactured articles used for public purposes	8,806	12	2¼	7,511	14	2¾	11,561	3	6½
Value of manufactured articles in store at the close of each year	64,691	10	9½	81,328	5	4¼	1,70,252	10	4
Total	4,49,628	6	7½	4,74,571	15	2½	5,83,036	14	–¼
Deduct value of manufactured articles in store at the end of each previous year	75,284	15	10	59,367	10	9½	1,36,246	6	5¼
Gross receipts of the year	3,74,343	6	9½	4,15,204	4	5	4,46,790	7	7
Deduct cost of raw materials, &c.	1,70,444	9	10¼	1,98,385	3	1¾	2,27,018	12	7¾
Net profits, exclusive of the profits of the Alipore Jail Press	2,03,898	12	11¼	2,16,819	1	3¾	2,19,771	10	11¼

	In 1864-65.			In 1865-66.			During the Quinquennial Period 1861-62 to 1865-66.		
	R.	A.	P.	R.	A.	P.	R.	A.	P.
Value of manufactured articles sold, for which money was realised and paid into the Treasury	4,84,759	7	–½	4,77,375	6	3½	21,25,219	8	9
Value of manufactured articles used for public purposes	5,912	–	11	10,671	8	2	44,463	7	–½
Value of manufactured articles in store at the close of each year........	1,06,164	8	5¼	1,52,477	4	2	1,52,714	4	5
Total	5,96,836	–	4¾	6,40,524	2	7½	23,22,397	4	2½
Deduct value of manufactured articles in store at the end of each previous year	98,431	1	6¾	1,06,164	8	5¼	83,863	–	–
Gross receipts of the year	4,98,404	14	10	5,34,359	10	2¼	22,38,534	4	2½
Deduct cost of raw materials, &c.	2,84,021	8	1¼	3,23,167	2	11	12,03,037	4	8
Net profits, exclusive of the profits of the Alipore Jail Press	2,14,383	6	8¾	2,11,192	7	3¼	10,35,496	15	6½

TABLE V.—*Net Profits Realised, inclusive of the Alipore Jail Press.*

	In 1861-62.			In 1862-63.			In 1863-64.			In 1864-65.			In 1865-66.			During the Quinquennial Period 1861-62 to 1865-66.		
	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.
Net profits on ordinary manufactures	2,03,898	12	11¼	2,16,819	1	3¼	2,19,771	10	11¼	2,14,383	6	8¾	2,11,192	7	3¼	10,35,496	15	6½
Net profits from the printing department of the Alipore Jail	2,09,605	5	3	1,30,766	2	5	2,20,643	14	11	1,13,315	3	4	1,19,770	11	3	7,94,101	5	2
Amount credited to this department for value of convict labour hired to the Department of Public Works	4,319	14	5	2,421	6	4	1,035	4	6	1,020	3	2	10,783	5	6	19,580	1	11
Amount received for value of convict labour lent to other departments	7,383	6	3	11,904	9	3½	9,295	13	1¾	10,756	1	5	9,016	8	9	48,356	6	10¼
Amount in fines in commutation of labour	27,306	15	–	2,751	–	–	3,135	12	–	2,275	2	2	1,415	4	–	36,884	1	2
Total value	4,52,514	5	10¼	3,64,662	3	3¾	4,53,882	7	6	3,41,750	–	9¾	3,52,178	4	9¼	19,34,418	14	7¾

TABLE VI.—*Gross and Net Cost of Maintenance under every Head of Charge.*

	1861-62.						1862-63.						1863-64.					
	Prisoners—16,611.						Prisoners—17,761.						Prisoners—18,168.					
	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A	P
Food.																		
Rations	3,31,786	5	11¾				3,53,528	8	3				3,57,432	8	–			
Money allowance	—						—						—					
				3,31,786	5	11¼				3,53,528	8	3				3,57,432	8	–
Establishment.																		
Fixed executive staff and warder establishment	1,11,881	13	11				1,07,619	9	6				85,617	3	10			
Extra burkundauze guards	29,259	13	4½				18,424	10	5½				20,173	1	10½			
				1,41,141	11	3½				1,26,044	3	11½				1,05,790	5	8½
Hospital Charges.																		
Bazar medicines	3,171	–	–½				3,223	12	1½				3,807	–	3½			
Sick diet	4,191	6	7½				4,585	13	7½				4,915	4	7¾			
Furniture	171	5	6				686	5	2				1,011	10	5			
				7,533	12	2				8,305	14	11				9,733	15	4¼
Clothing.																		
Cloth, bedding, and blankets				36,506	12	10¼				44,088	–	1½				54,794	2	2
Public Works Charges.																		
Additions, alterations, and repairs				8,432	11	6½				10,924	13	4				9,883	5	10½
Contingencies.																		
Contingent expenses, including stationery				26,485	9	11¾				27,730	–	–¼				27,508	–	7½
Gross cost of maintenance				5,51,886	15	9				5,70,621	8	7¼				5,65,143	5	8¾
Deduct value of labour				4,56,803	3	7½				3,64,662	3	3¾				4,53,902	10	3
Net cost of maintenance				95,083	12	1½				2,05,959	5	3½				1,11,240	11	5¾

	1864-65.						1865-66.						During the Quinquennial Period 1861-62 to 1865-66.					
	Prisoners—17,961.						Prisoners—18,811.						Prisoners—89,312.					
	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.
Food.																		
Rations	4,48,429	6	4				5,90,557	9	9¾				20,81,734	6	4			
Money allowance	—						—						—					
				4,48,429	6	4				5,90,557	9	9¾				20,81,734	6	4
Establishment.																		
Fixed executive staff and warder establishment	96,238	3	10				1,43,920	4	9				5,45,277	3	10			
Extra burkundauze guards	16,876	14	10½				12,759	14	9				97,494	7	4			
				1,13,115	2	8½				1,56,680	3	6				6,42,771	11	2
Hospital Charges.																		
Bazar medicines	3,535	15	6½				3,560	10	1				17,308	6	1			
Sick diet	6,579	1	8				7,698	10	2¼				27,770	4	9			
Furniture	507	15	9				213	–	–				2,590	4	10			
				10,623	–	11½				11,472	4	3¼				47,668	15	8
Clothing.																		
Cloth, bedding, and blankets				78,555	14	3½				77,918	–	3¾				2,91,863	13	8
Public Works Charges.																		
Additions, alterations, and repairs				10,385	13	5½				21,090	–	6½				60,716	12	9½
Contingencies.																		
Contingent expenses, including stationery				37,860	6	–				42,628	13	2				1,62,212	13	9½
Gross cost of maintenance				6,98,969	11	9				9,00,346	15	7¼				32,86,968	9	5
Deduct value of labour				3,43,287	13	1¾				3,54,150	2	10¾				19,34,418	14	7¾
Net cost of maintenance				3,55,681	14	7¼				5,46,196	12	8½				13,52,549	10	9¼

Table VII.—*Gross and Net Cost of Maintenance per Prisoner under each Head of Charge.*

	1861-62.		1862-63.		1863-64.	
	Prisoners—16,611.		Prisoners—17,761.		Prisoners—18,168.	
	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.
Food.						
Rations, including money allowance		19 15 9·8		19 14 5·6		19 10 9·
Establishment.						
Fixed..	6 11 ·1		6 – 11·3		4 11 4·8	
Extra	1 12 2·4		1 – 7·2		1 1 9·2	
		8 0·5		7 1 6·5		5 13 2·0
Hospital Charges.						
Bazar medicines	– 0·7		– 2 11		– 3 4·2	
Sick diet	– ·5		– 3 11·4		– 4 5·3	
Furniture..	– – ·9		– – 7·4		– – 10·7	
		– 7 2·9		– 7 5·8		– 8 7·9
Clothing.						
Cloth, blankets, and bedding		2·2		2 7 8·6		3 – 3·1
Public Works Charges.						
Additions, alterations, and repairs		9 9·8		– 9 10·2		– 8 7·4
Contingencies.						
Contingent expenses, including stationery		– 1·5		1 8 11·8		1 8 2·7
Total..............................		33 4 2·7		32 2 0·5		31 1 8·5
Net cost per prisoner		11 7·5		11 9 6·4		6 1 11·5

	1864-65.		1865-66.		During the Quinquennial Period 1861-62 to 1865-66.	
	Prisoners—17,961.		Prisoners—18,811.		Prisoners—89,312.	
	R. . P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.	R. A. P.
Food.						
Rations, including money allowance		24 15 5·6		31 6 6·3		23 4 11·2
Establishment.						
Fixed..	5 5 ·7		7 10 5·6		6 1 8·2	
Extra	– 15 0·4		– 10 10·3		1 1 5·5	
		4 9·1		8 5 3·9		7 3 1·7
Hospital Charges.						
Bazar medicines....................................	– 3 1·8		– 3 0·3		– 3 1·2	
Sick diet	– 5 10·4		– 6 6·6		– 4 11·7	
Furniture..	– – 5·4		– – 2·2		– – 5·5	
		– 9 5·6		– 9 9·1		– 8 6·4
Clothing.						
Cloth, blankets, and bedding		4 5 11·8		4 2 3·6		3 4 3·4
Public Works Charges.						
Additions, alterations, and repairs		– 9 3·0		1 1 11·4		– 10 10·6
Contingencies.						
Contingent expenses, including stationery		2 1 8·7		2 4 3·3		1 11 11·2
Total..............................		38 14 7·8		47 14 1·6		36 11 8·1
Net cost per prisoner...............		19 12 1·1		29 2 6·9		15 2 3·6

APPENDIX B.

Extracts from Bengal Jail Code of 1864.

Labour and Employment of Convicts.

Labour to be punitive in preference to remunerative. Extramural labour prohibited.

1. The law intends imprisonment to be a punishment, and therefore the first thing to be looked to in labour is, not that it should be remunerative, but that it should render a residence in jail a matter of dread, apprehension, and avoidance. Labour is the principal means of enforcing discipline in jails. Suitable provision for intramural labour shall be made in all jails. All extramural labour, except that in the jail garden, is strictly prohibited.

Medical officer to determine class of labour on which prisoner is to be employed on admission. Precautions.

2. The class of labour on which every prisoner sentenced to rigorous imprisonment shall be placed shall be determined by the Medical Officer, with reference to the state of health of the prisoner at the time, and his ability to undergo hard labour. Great care shall be taken that the precautions necessary for the exemption of physically weak and diseased prisoners from the prescribed scale of labour be not improperly exercised, to the undue mitigation of the sentence.

Classification of labour.

3. Jail labour is divided into three classes, as follows:—

First Class.

1. Oil pressing.
2. Lime grinding.
3. Flour ,,
4. Paper pounding.
5. Pounding bricks for soorkee.
6. Paper polishing.
7. Printing (press work).
8. Bookbinding (press work).
9. Digging and carrying earth.
10. Drawing water.
11. Cleaving firewood.
12. Sawing wood.
13. Cleaning privies and carrying night soil.
14. Bowing wool.
15. Making bricks or drain tiles by machinery.
16. Blacksmith's work.
17. Sifting flour, at 5 maunds per man daily.
18. Breaking stones for metalling roads.

Second Class.

1. Masonry.
2. Stone cutting.
3. Paper making.
4. Blanket weaving.
5. Gunny ,,
6. Cotton cloth weaving.
7. Basket making.
8. Dworee, rug, and carpet weaving.
9. Cleaning yards and wards.
10. Washing paper pulp.
11. Brick and tile making.
12. Cooking and parching grain.
13. Supplying masons with materials.
14. Storing and weighing grain.
15. Carrying or pumping water.
16. Carpentry.
17. Compositor's work.

Third Class.

1. Tailoring.
2. Dyeing.
3. Cloth printing.
4. Folding and stitching books.
5. Reading proofs and lithographic writing.
6. Barber's work.
7. Spinning twine or thread.
8. Leather work.
9. Sizing and drying paper.
10. Weeding and removing decayed vegetation.

Regulation as to proportion of labour with reference to period of sentence.

4. The proportion of each class of labour allotted to a prisoner shall be regulated according to the length of his sentence as prescribed in the following table:—

Duration of Sentence.	1st Class.	2nd Class.	3rd Class.
Not exceeding 12 months	The whole term		
Exceeding 12 months but not exceeding 18 months	$\frac{2}{3}$ of the term	$\frac{1}{3}$ of the term	
Ditto 18 months ditto 2 years	$\frac{5}{8}$,,	$\frac{3}{8}$,,	
Ditto 2 years ditto 3 years	$\frac{1}{2}$,,	$\frac{1}{2}$,,	
Ditto 3 years ditto 4 years	$\frac{1}{2}$,,	$\frac{3}{8}$,,	$\frac{1}{3}$ of the term
Ditto 4 years ditto 5 years	$\frac{1}{2}$,,	$\frac{2}{5}$,,	$\frac{1}{10}$,,
Ditto 5 years ditto 6 years	$\frac{5}{12}$,,	$\frac{5}{12}$,,	$\frac{1}{6}$,,
6 years and upwards	$\frac{3}{7}$,,	$\frac{3}{7}$,,	$\frac{1}{7}$,,

Transfer from 1st to 2nd or 3rd class labour is an indulgence, not a right. Time spent in hospital is 3rd class labour.

5. The transfer of a prisoner sentenced to first class labour, from that class of labour to work of the second class, and afterwards of the third class, is to be regarded as an indulgence dependent on conduct, and not as a right. Time spent in hospital by labouring prisoners is to count as third class labour.

Regulation of labour by task work; quantity of labour to be performed.

6. The labour of all working prisoners shall be regulated as much as possible by task work, the task of each day being at least that performed by a free labourer of the same craft in the district.

Scale of labour. Labour in garden. Labour of convalescent and aged prisoners.

7. Every labouring prisoner shall be required to perform a specific task estimated at ten hours of work daily, exclusive of the time occupied at meals; and the Medical Officer of the jail may recommend a proportion of gardening work, in substitution of a corresponding proportion of handicraft employment, for any prisoner for whose health it may be necessary. Convalescent and aged prisoners shall only be employed on such light work as may be determined by the Medical Officer.

Rules regarding the labour of under trial prisoners, and prisoners not sentenced to labour.

8. Any prisoner not compelled to labour by his sentence, or any person committed for trial who is willing to work rather than remain in idleness, shall be permitted to do so provided his consent is *freely* given. In all such cases the prisoner shall be allowed to select the work on which to be employed, and shall be entitled to the full labouring rations of the class or nationality to which he belongs, and to all privileges to which good conduct entitles labouring prisoners. He shall further be allowed, when set at liberty, to receive half the net profits of his entire earnings.

Rules for the allotment of the menial duties of jail, caste prejudices to be observed; false pleas to be reported.

9. All the menial and other duties of the jail which can properly be delegated to prisoners, shall be assigned, at the discretion of the officer in charge of the jail, to labouring convicts, care being taken that no such work shall be assigned to, or exacted from, a Hindu prisoner to whom it may really be objectionable on the ground of caste. Equal care must be observed that no prisoner on a false plea of caste is permitted to evade any labour which he may consider to be onerous or disagreeable. All such cases shall be reported to the Inspector-General of Jails, who, after making due and proper inquiry, shall determine whether the plea advanced is valid or otherwise, and issue instructions accordingly.

10. The proportion of servants and hospital attendants shall on no account exceed 10 per cent. of the prisoners in custody, except in epidemic visitations of disease, when the number of attendants may be increased on the requisition of the Medical Officer, the same being duly reported to the Inspector-General of Jails, whose orders on the subject shall be final.

Scale of servants and hospital attendants. Excess on fixed scale when allowed; all such excess to be reported.

11. All jailors are entitled, in addition to their fixed salaries, to a fixed commission of 10 per cent. on the net profits of manufactures, such net profits being calculated by deducting all charges (except the cost of maintenance of the prisoners) incurred in the production of the manufactures, such as the building and repair of work sheds, tools, machinery, raw materials, pay of work overseers and guards, &c., from the sum realised by the sale of the products of jail industry. No commission shall be claimed or allowed on any unsold article, or on any article of which the cost has not been realised and paid into the local treasury. Two-thirds of this percentage, calculated on an average of the realised net profits of the three previous years, shall be paid in advance and drawn monthly in the contingent bill of the jail.

Rate of commission to jailor; mode of calculating it; advance of commission how arranged.

12. All contracts for the purchase of raw materials, and all handicrafts introduced into the jails, shall be strictly subject to the sanction and approval of the Inspector-General of Jails, without which such contracts shall not be valid, and such changes in the labour of the jail shall not be permitted. As a general rule no handicraft that is neither penal nor profitable, nor of the nature required for weak and sickly prisoners, shall be introduced.

Contracts for supplies not valid unless sanctioned by Inspector-General of Jails. Introduction of new handicrafts to be reported. Handicrafts not penal nor remunerative, or unsuited to weak or sickly prisoners, not to be introduced.

13. In times of epidemic visitations of disease, or whenever from excessive heat or similar causes, it may be absolutely necessary to limit or modify the labour of convicts in jail, a special report of the nature and extent of the modification or limitation considered to be necessary shall be made by the Medical Officer to the officer in charge of the jail, who shall act at once upon the recommendation of the Medical Officer, reporting the matter, with his own observations regarding it, for the information and orders of the Inspector-General of Jails, whose orders on the subject shall be final.

Regulation of labour in times of epidemic visitations of disease, &c. Modifications to be reported.

14. Labouring prisoners refusing to work, neglecting to perform the tasks assigned to them, executing those tasks in a slovenly or careless manner, or wilfully spoiling or destroying tools, machinery, materials, or work, shall be punished in the manner laid down in the regulations regarding punishment for breaches of jail discipline.

Punishment to labouring prisoners refusing work, &c.

15. Except in menial offices and works of necessity, no labouring prisoners shall be compelled or required to work on Sundays.

No work on Sundays. Exception.

16. All prisoners shall wash their own clothing and bedding, and shall bathe at such time and in such manner as the officer in charge of the jail may direct, so as to interfere as little as possible with the ordinary work of the jail.

Rules for ablution and washing of clothes, &c.

17. Any skilled labouring prisoner employed in handicrafts is exempt from further work as soon as his daily allotted task is completed.

Prisoners exempted from labour after task-work is completed.

18. The sum required for the purchase of raw material and machinery, building of worksheds, &c., shall be settled annually by the officer in charge of the jail in communication with the Inspector-General of Jails, and due provision for it shall be made in the budget, a special note of all changes being made for the information and final orders of the Government.

Budget provision to be made for cost of carrying on manufactures.

Rewards for the Well Conducted Convicts.

1. To encourage convicts—male and female—to a strict obedience to jail discipline, and to good conduct generally, those prisoners whose behaviour has been exemplary throughout, and who have completed the prescribed term of labour of the first-class, may be rewarded by employment in the undermentioned subordinate offices in the jail, viz.:—

Nature of indulgence to well conducted convicts. Conditions.

I. Convict Work-overseer.
II. Convict Warder.
III. Convict Guard.

2. That the position of these convict work-overseers and guards may not be misunderstood either by themselves or others, the performance of their duties shall be counted as enforced labour of the second class, for which no gratuities of any kind should be granted.

Abuse of indulgence to be corrected as enforced labour of the 2nd class, for which no gratuities should be allowed.

3. No convict shall be employed in any subordinate office in the jail establishment until after the expiry of time of labour of the first class prescribed in the note on the subject.

First-class labour to be completed, before employment in jail establishments.

4. The work-overseers, warders, and guards selected from among the prisoners, shall continue to wear their jail dress, with the addition of a brass badge, on which shall be inscribed the name of the jail and the grade of the wearer.

Convict servants of above classes to wear jail dress; to be allowed a badge; nature of inscription thereon.

5. Convict work-overseers, warders, and guards should be treated with the consideration befitting the positions of trust to which they have been elected; their shortcomings should be temperately reproved apart, so as not to degrade them in the sight of the prisoners over whom they have been placed, otherwise their influence will be nullified.

Rules for the treatment of convict servants of the above classes.

6. Convict work-overseers, warders, and guards shall not suffer corporal punishment on any summary inquiry.

Not to suffer corporal punishment.

7. Convict work-overseers, warders, and guards shall be liable to degradation by the officer in charge of the jail for any serious misconduct or failure of duty, a detailed report in each case being made at the time to the Inspector-General of Jails. It is apprehended that this extreme measure will rarely be required, if the prisoners have been well selected for these appointments of trust, their duties thoroughly explained to them, their conduct habitually supervised by the officer in charge of the jail, and charges against them carefully inquired into, to prevent them becoming the scapegoats of negligent jail officers, or the victims of vindictive fellow prisoners. If from the frequency of degradation their tenure of office be rendered uncertain, they will be afraid to do their duty.

Above classes of servants may be degraded; when degraded, report to be made to Inspector-General of Jails. Proviso.

Scale of convict servants of above classes.

8. The aggregate number of convict work-overseers, warders, and guards shall never exceed 10 per cent. of the number of prisoners confined in the jail.

Appointment of convicts to office in jail establishment to be reported to the Inspector-General of Jails for confirmation, accompanied by "Prisoners' Historical "Register."

9. All appointments by the officer in charge of the jail of well behaved convicts to subordinate offices on the jail establishment shall be submitted, for approval and confirmation, to the Inspector-General of Jails, who shall be furnished, for his guidance, with a copy of the appropriate leaf of the "Prisoners' Historical Register" relating to each convict provisionally appointed. From this his antecedents, in all that relates to his crime, sentence, labour, conduct, &c., in jail, will be apparent, as well as certain information regarding his position in life, residence, occupation, and family, before imprisonment.

When once degraded, cannot again be reappointed.

10. A convict work-overseer, warder, or guard degraded for misconduct, is permanently ineligible for re-appointment.

The duties of the convict subordinate officers were also strictly defined, and a system of intermediate imprisonment, similar in character but greater in extent than that of Sir Walter Crofton, was also introduced.

(*Extract from Rules for the Superintendence and Management of Jails in the Lower Provinces of the Bengal Presidency, made by the Lieutenant-Governor of Bengal, in accordance with the provisions of Act II* (*B.C.*) *of* 1864.)

DISCUSSION *on* DR. MOUAT'S PAPER.

THE CHAIRMAN said Sir EDMUND DU CANE, Director of Prisons, had been prevented, very much to his own disappointment, from being present, but had furnished the following memorandum which perhaps the Society would accept as the expression of his views upon this subject:—

"I should like first to observe that the paper which has just been read affords a remarkable instance of the wide field of experience which we Englishmen have to draw from in discussing our affairs, in consequence of a large part of the earth which in one form or another we govern; and of the able administrators which our Indian Empire develops and sometimes returns to us to help in regulating our affairs at home, among whom Dr. Mouat is a distinguished example.

"In the soundness of the principle advocated in the paper, that industrial labour should form a main feature in prison treatment, I entirely agree. In convict prisons this has always been adopted; except for special purposes, and for very short terms, no other sort of labour has ever been enforced in them.

"We have employed convicts, as is well known, in executing very large public works at our dockyards and naval stations, on works of fortification, and in farming, and they have done very valuable work in building their own prisons. These works have afforded a great variety of industries. We have also done work in making boots and clothing for our own use and for the police, and certain other manufacturing work for other public departments, and have tried to find other employment with more or less success.

"But finding suitable labour for all is very difficult, and it was largely for the purpose of getting some suggestions from outside on this point that I read a paper at the Society of Arts in 1872—not, however, I am sorry to say, with the result I hoped for. But as convicts under sentence of penal servitude remain in prison long enough to learn a trade, one of the great difficulties which we have to contend with in the case of the short sentence prisoners is in their case absent. Here, nevertheless, a good deal has been done, especially of late years. After 1865, the local prisons were, until 1878, regulated in the main under an Act passed in the former year, of which a leading provision is that all male prisoners over 16 years of age, sentenced to hard labour, shall for the whole of their imprisonment, if under three months, or for at least three months, if their sentence is longer, be employed at hard labour of the treadwheel type. If the visiting justices thought proper they might be so employed for the whole of their sentences however long.

"These provisions did not recommend themselves to all the prison authorities of those days; some of them thought they led to great waste of labour, and it was arranged that in practice mat making, if a heavy beater was used, might be considered to satisfy the conditions of the Act. It was thought also that if the treadwheel was turned to a useful purpose, as in grinding corn or pumping water, the objections would be met.

"Before the passing of the Prison Act, 1877, Mr. Cross (now Lord Cross) consulted me on the subject of this clause in the Act of 1865, and I advocated reducing the term of this sort of labour to one month, which was accordingly done by the Prison Act, 1877. But grinding a treadwheel or a crank is not an employment which in any way appeals to the faculties which one wishes to develop or to work on in reforming a prisoner, and it may be asked why not do away with it altogether. There are two reasons. One is that a very large number of the prisoners who are received in our local prisons are under very short sentences, such as seven days to twenty-eight days, and a very large proportion of them know no trade which could be practised in prison, and under the conditions of prison life. Time is too short to teach them anything, and there is nothing for it in the case of these sentences but labour of the kind I have described as of the treadwheel type, varied perhaps by oakum picking. Then for the sake of treating all prisoners alike, and because it is an advantage to make a man feel that industrial labour is a privilege to be gained, the prisoners whose sentences are longer are passed through a similar stage of penal labour, after which they are employed at any higher kind of labour we can find for them.

"Since the Act of 1877 a very great variety of employments have been introduced into the local prisons, in supplying our own wants and those of other government departments where we have succeeded in persuading them to give us work, in which however we have not been very successful.

"We are driven therefore to the manufacture of articles for sale to the public, and the principal article we make is mats. In this matter we are beset by a chronic agitation of master manufacturers and their workmen in the form of a protest that the wages of free mat makers are kept down by the competition of prison labour. As we have during the last thirteen years reduced the number of our mat makers in order to satisfy this complaint from upwards of 3,000 to under 1,000, whose labour being very unskilled is thought not to be equal to more than one-fourth or one-fifth of the same number of free men, and as free wages have not apparently been improved thereby, but the number of new firms of mat makers has considerably increased, it is more than doubtful whether our small competition has any effect at all on the wages. Certainly the same reason as makes it suitable for prisoners and for blind institutions, &c., viz., the facility with which it can be acquired, will always keep wages low in this trade, and the cessation of mat making as a prison manufacture will not prevent but rather encourage the foreign competition which is now springing up on the continent of Europe, in India, and in our colonies, by which the English mat trade will lose the foreign market even if foreign makers do not compete with those in England.

"Nor can I think that with the small dimensions our trade is now reduced to, the profits of the master manufacturer would be increased even by our totally ceasing the employment, though they no doubt think otherwise.

"The prison system is of course only one of several agencies by which crime is repressed, but inasmuch as in former years, when crime was increasing, the principal part of the blame was attributed to the defects of the mode of carrying out penal sentences, so now that crime is decreasing in a most remarkable way we may fairly say that the prison system contributes to the result.

"I send with this two diagrams, of which one shows the extraordinary and continual decrease in the average prison population every year since 1878, and the other which shows the fluctuations of the prison population during the course of each year. It will be seen that in January, 1891, we touched a lower level by 1,500 than had ever before been known, and the population was then 6,600 lower than the lowest population on the average of the five years 1878-83. The reports of the commissioners and directors of prisons show that the decrease in the population of the prisons is coincident with a diminution in the number of persons sentenced, and is not due solely to shortened sentences; and the fact that this is due to a decrease of crime is corroborated by the very large decrease in crime reported in the police returns and in the number of habitual criminals known to the police, and also in the number of disorderly houses.

"I trust therefore that this may be taken to show that our prison system is now on the right tack, though we must always hold ourselves ready to consider and adopt such improvements as can be devised."

Mr. F. S. Powell, M.P., said there was one remark and one only in the interesting paper of their President to which he must take exception, and which he believed had been heard with a unanimous protest, and that was where he said that with this paper he took his final leave of a question which occupied so many years of his official life. He hoped they were not concluding words, but on the contrary introductory words to many most interesting and valuable contributions. The subject of penal discipline would, he believed, be discussed during many years to come, as it had been debated during many years in the past. Its difficulty and complexity must always be large, because the causes of crime must always be varied. They had to deal with crimes the result of passion in its various forms, and he doubted whether crime of that character could be checked by any other agency than that of the most stern and severe repression. Another class of crime perhaps more complex in its character, was where a criminal was, according to his position in the world, well to do, and yet from a morbid desire of gain committed an odious offence. A case of that sort had recently occurred in which a clerk in a commercial house, apparently in the receipt of a fair salary, committed frauds to the extent of 70,000*l*. The most prevalent class of crime in this and all other countries, while assuming various forms, arose, when they came to the root of the matter, from the weakness and debility of human nature. His experience in the West Riding as a visiting justice and more or less as a magistrate, led him to that conclusion. It was a common saying there that no one would live by crime who could live by anything else; and taking that as a doctrine, and he believed it to be in the main a sound doctrine, their policy in prison discipline was to build up the character in such a way that weakness might be removed, and the tendency to crime, owing to the inability to derive livelihood from any other resource, might cease to exist. Discipline must be at once deterrent and reformatory. Any system which left out of sight these principles was unsound and must lead to failure. To put the case in a concrete form, he should say the duty of society towards a criminal was at once negative and positive. A man who stole a watch must be taught that he was not to steal a watch again; that was the negative side. The positive side was that he must be taught by discipline that it was better and wiser to resort to such a course of industry that he might produce by his own benefit and the good of society a watch of his own. These few words contained the whole of the doctrine on which they must work; the prisoner must be taught that jail was such a place that he was not to go there again, and at the same time he must if possible have placed in his possession such power of earning his livelihood that he might have no reason or occasion to resort to practices which led him to jail. As practical politicians they must pay attention to what had been referred to by Sir Edmund Du Cane, viz., the shortness of their sentences. What were they to do with a young person who had fallen into crime when the sentence only extended over a month? They could not change the character of a young person in a month; all they could do was to give an experience of sharp discipline, and to excite in the mind a wholesome dread and a determination that the discipline should not again be experienced. If on the other hand they had control of a person during a long period, an effect might be produced on his character which they could never hope to achieve in the course of a month or the like. Reference had been made to the competition of free labour. The President in his valuable paper used the words "unfair competition." The whole question turned upon that word "unfair." He could not see why a prisoner, who by his circumstances was withdrawn from doing his duty to the community, should not in prison continue to contribute to the national resources. If they were to produce an artificial depression of prices and cause labour outside the jail to be unremunerative, then they had to deal with a totally different condition of affairs; but he maintained that so long as labour in jail was paid for at a fair market price, the outside public and the community at large had no cause to complain. How far the complaints made respecting mat making were just or not must depend upon the circumstances of the case. At the time when, owing to the passing of the Prisons' Act, he ceased to be visiting justice at Wakefield, the number of mats produced was such that there was no market for them, and it became a serious question whether the jail authorities were justified in continuing a production which was at times coincident with a surfeit of the market. The effect produced on the public mind at that time was such that mat making if not entirely abolished, was at any rate most largely reduced. Dealing with the more general view of the question, he said there must be in prison discipline at once gentleness and firmness. There must be gentleness to avoid creating in the mind of the prisoner that antagonism to authority which was enlarged upon with so much force by their President; and at the same time firmness to teach the prisoner that the course of life to which he had resorted in the past could not be continued. Just as in childhood it was by discipline that the boy was taught to govern himself by gentleness and firmness combined, so in the case of the grown up children who peopled their jails there must be firmness and gentleness acting together, gentleness which might soothe and console, and at the same time firmness which might give robustness and decision of character to resist temptation and prevent the occurrence of breaches of the law.

Captain A. D. H. Helby, R.N., said he did not feel qualified to discuss at a moment's notice such a large subject as this, although of course from long personal experience he might have some opinions upon it. The result of his experience was to confirm very emphatically most of the propositions laid down by the author; in practical working, however, difficulties would arise, one of which had been suggested by Sir Edmund Du Cane, viz., the impossibility of providing industrial labour for prisoners undergoing sentences of one, two, or three months, or teaching them any part of a trade that could possibly be turned to any remunerative purpose, or to their own advantage after discharge. The prison system of the present day was in the main carried out upon the lines of Dr. Mouat's paper. Within the last twenty years there had been a wonderful change of opinion upon the subject. He had twenty-five years' experience of prison matters, and when he first entered the prison employment it was the prevailing opinion amongst county magistrates that simple punishment was all that was required (except, of course, the moral influence exercised by the chaplains), and that industrial employment was unnecessary and sentimental, and rather against than for the diminution of crime. The Prison Congress of 1872, held in England, opened the eyes of many upon the subject; it certainly did his own, and he had the pleasure of submitting some results of what he had heard to his own visiting justices, who permitted him to introduce a system of industrial labour into a prison where there had been nothing of the sort before, and with the very best results. His experience led him to say that mere penal labour was neither deterrent nor reformatory. On the other hand, he had seen instances of the stimulus which could be given to prisoners towards good conduct and industry, by encouragement in the way of allowing them to perform more than the regulation task and to get some little benefit by it.

Mr. F. HENDRIKS said the statistics brought forward by the author of the paper were of great interest. They were no doubt twenty-five years old, but prices did not vary so much in India as in England, and therefore the figures might be considered as fairly indicative of what was applicable to the present day. In the first place, they showed the cost of feeding, lodging, clothing, guarding and doctoring something like 15,000 prisoners on the average during five years. The average cost under these items collectively was about 2¼*d.* per head per diem. By the productive labour of those prisoners the net expense had been reduced from this total cost of 2¼*d.* to the low one of 1*d.* per day, showing a saving, through the productive work of the prisoners, of 1¼*d.* per day. That was a very important result, and he would have been glad if Sir Edmund Du Cane had brought forward any statistics of the like character with regard to the productive industry of prisoners in England. The saving in India through this system was five-ninths, or say 55½ per cent. of the total cost. The statistics were also interesting as showing at what a low cost the maintenance of life could still be preserved in their Indian Empire. In the sixteenth century they learnt from the statements of English travellers, that a man who had about 3*l.* a year in India at that time was in a position of affluence as to the necessaries of life; and as prisoners could now be maintained, watched, clothed, and doctored, for 3*l.* 16*s.* a year, it showed that there had been no great change in the cost of life in India since the sixteenth century. On the question of competition between open industry and forced labour, the author had shown that the profit or net value of the labour in jails of an average number of 15,269 prisoners was about 38,688*l.* per annum.

Such a sum must be a mere drop in the ocean as compared with the annual return from labour of the vast population of Bengal, and the economical part of the question was therefore not worth considering, and ought not to be any impediment to the promotion of prison labour. In Bengal the profits from that kind of labour not having exceeded 39,000*l.* a year for the whole province, this result was far too insignificant to come into effective competition with the open labour of the general population. He held it to be quite unreasonable to say that jail labour could practically anywhere interfere prejudicially with the general work of any country. Sir Edmund Du Cane's communication appeared to refer to mat making as almost the only class of manufacture to which prisoners' work was devoted in England. In India the author had shown there was a great variety of different kinds of labour to which the work of prisoners was applied, printing, making of pottery, and various industrial occupations. They had much to learn in England from what had been done in India. If in the United Kingdom the work of prisoners was divided amongst a great number of industries, it would diminish the outcry of undue competition from any particular branch of industry. It was clear that when nearly all the productive prison labour was applied to the making of mats, it came into collision with one particular class of manufacturers, who were not very large in number. That certainly seemed to deserve attention and remedy. He concurred with preceding speakers in thanking Dr. Mouat for his most admirable essay.

The CHAIRMAN asked whether Captain Helby could give some information as to the extent to which the employment of prisoners had diminished the cost of their maintenance.

Captain HELBY said there was great difficulty in ascertaining accurately what was the value of industrial prison labour in England, because most of the articles made were made either for use in the prisons, or for some other public department, and there was a system of accounts which allowed only the merest modicum of profit to be charged against the Government. The consequence was the marketable value of the industrial turn out of the prisons could not be accurately ascertained, and was probably very much under estimated in the returns. With regard to the percentage of return from industrial labour in India, estimated at 55 per cent. of the cost of the prisoner, no such results could be shown in any English, or probably in any other prisons in the world but those of India. It must simply arise from the cheapness of maintenance, that their diet was so very cheap that industrial labour became a good set-off to the cost. If the system of employing prisoners as overseers of other prisoners prevailed largely, that would considerably reduce the cost of the establishments. He was afraid he could not throw much more light upon it than that.

Major CRAIGIE said he regarded the diagram, prepared by Sir Edmund Du Cane which had been handed round the room, with a certain amount of satisfaction, because although the question was one he had had nothing to do with for a great many years, it so happened in the year immediately preceding 1877, when the transfer took place of local prisons to the State, it was his duty to look very closely into the figures of the number of prisoners, and cost of their maintenance. He had the opportunity of pointing out the extreme want of economy by which their system of numerous and often nearly empty local prisons was then characterised, when, as in the county of Lincoln, over 100*l*. per annum was spent on each individual prisoner. He remembered being told afterwards that he had done great harm to the neighbourhood by helping to deprive certain localities of the luxury of their separate prisons; but if any justification were wanted for legislation which consolidated our local system, it was found in the diagram to which he referred, for nothing could be more striking than the fall in the average prison population that had taken place since they substituted for independent county jails a system of uniform management in a reduced number of concentrated central establishments. The total daily prison population in the year 1877 appears to have been 20,400; it had now been reduced to an average of 14,000, and that decrease in the face of an increasing population was so very remarkable, that whatever other factors were at work, some considerable portion of the change must be due to the change of the system adopted at that time. The abolition of the numerous small prisons, where discipline was sometimes loose, and arrangements for labour defective, and the substitution of larger institutions regulated under one consistent management and from one centre, had remedied a very objectionable state of matters. When the Prisons Bill was being discussed in the House of Commons, it was stated that persons who committed crimes positively deliberated whether they should commit their misdemeanour on one side of a hedge or the other; the treatment was so varied in degree between particular counties, that it really was a matter of some concern where they should run the risk of being caught. That had all been happily abolished, and ample justification for the action then taken was found not only in great economy effected, but also in a most remarkable diminution in the number of their prison population.

Mr. F. B. GARNETT said it might be worth consideration whether the decrease in the criminal population was not rather due to the greater enlightenment of the people than merely to modifications in the prison management of the country. No one, however, could have heard Dr. Mouat's paper without regretting that owing to change in the views of the administration which succeeded the period of his management of the prisons in India, they had no means of testing the efficacy of the reforms which he introduced, and the efforts that he made in conjunction with others to procure by means of the industrial employment of the prisoners a means of permanent reformation of their characters. They had the authority of antiquity in favour of industrial occupation for the reformation of disorderly persons. Dr. Mouat had referred to a sentence of Howard with regard to the men in the prisons of Holland being "put to labour in the task-houses, and women to proper work in the spin-houses," which might remind them of the discussion which had lately taken place as to what was known as "the spinning house case" at Cambridge. "Punch" only the previous week, under the head, "What's in a name?" had written—

> "Will some one gifted with the *nous*,
> Explain the 'why' of 'Spinning House.'"

There was no doubt that the designation "spinning house" at Cambridge, meant practically a spinning house, to which women who were committed to confinement for disorderly conduct were sent to spin. Of course in the 302,000 convicts enumerated by Dr. Mouat, females were included as well as males, and it would have been interesting if they could have known the proportions of the sexes, especially when they had to consider the industrial occupations in which they might respectively engage. It was a curious fact that in different countries the proportions were so diverse in regard to the sexes of criminals. In a book lately published by Mr. Morrison, of Wandsworth Prison, on "Crime and its Causes," allusion is made to the fact of the larger proportion of women in the criminal population of Scotland than there are in England, and it is stated that "in all countries where women are accustomed to share largely in the active work of life with men, female crime had a distinct tendency to reach its maximum . . . and that the more women were driven to enter upon the economic struggle for life, the more criminal they will become." He did not profess to say whether there was any real foundation for that argument, but still it would be curious to be able to compare the statistics of other countries on this point.

Mr. Rowland Hamilton said he should be very sorry to attribute the whole improvement that had taken place in any section of society to any one method in particular. He had long hoped that their public elementary schools, duly extended, would on one side be in touch of the jail and reformatory, and it was most satisfactory to learn how very largely the remedial element obtained in these institutions, regarded rather as reformatories than as exclusively places of punishment. There was indeed some hardship in the fact that hitherto better means of instruction had in certain cases been afforded in jails than had been available to the poor who were struggling to maintain an independent condition, but that he hoped would shortly be a thing of the past, and also that technical institutions, polytechnics, and other practical modes of industrial training, would remedy that anomaly in our system. He quite agreed with Dr. Mouat that it never would have been tolerable to cut off prisoners from industrial occupations on the ground of interfering with the special interest of individuals. In India it will be seen a very large number of occupations are open, but the preponderance given to mat making showed that as a rule only the roughest forms of labour had been available in English jails. The comparisons of relative cost instituted were often very fallacious. As far as the prices of commodities in Europe determined those of exports from India, the rate of exchange might afford some help in forming a comparison, but apart from this the range of local prices in India is not influenced by foreign demand, and turning the "anna" into "sterling" gives no satisfactory indication at all of what comparison the cost of supporting criminals would bear to the total resources of the country. It was only in cases where the measure of value was made the same to any two countries by the efficient operation of trade, that these comparisons were otherwise than misleading.

Dr. Mouat, in reply, said there was little for him to answer in the remarks made, as they chiefly referred to the subject of crime without the prison, which he had advisedly excluded from his paper for the reasons stated, and which had recently been treated exhaustively in the excellent contribution on the subject by Mr. Grosvenor of the Home Office.

The general principles of prison discipline advocated by Dr. Mouat had apparently been accepted, and the only point referred to had been the difficulty of dealing with short sentences in a deterrent and disciplinary sense. The same difficulty had been experienced in India, where in the province of Lower Bengal only, labour sentences for periods up to and under one year amounted in the five years selected by him to no less than 84,614, of whom 81,940 were males and 2,665 females. Similarly sentences of simple imprisonment without labour amounted to 27,828, of whom 872 were females and the rest males.

For the former provision was made, as far as practicable, in the jail regulations contained in the Appendix. From these it will be seen that all prisoners of sentences not exceeding twelve months were placed on first class or hard labour, of which class out of eighteen varieties there were ten which needed no previous training, and could be applied to all who were physically fit to be subjected to them. The avowed object was to make a residence in jail for first offenders as distasteful as possible, without injury to health or risk to life.

There could be no comparison between the cost of prisoners in England and in India, as the conditions of life from climatic, ethnic, and other well known conditions were so totally different as to afford no ground for comparing them.

He concluded by thanking the meeting for the kindly manner in which his paper had been received.

The Chairman said his task would be a very easy one, that of offering to Dr. Mouat their thanks for his very interesting and valuable communication. He would only contribute two facts with regard to the cost of living which had come under his own observation. In Barbadoes, about eighteen years ago, he had occasion to ask his head butler about the cost of living with reference to the wages of a servant, and the reply was that the man could live very well upon $2\frac{1}{2}d.$ a day. That very nearly corresponded with the cost of living in India. His experience as governor in the colonies, where it had been his duty to visit the jails, led him to express his entire accord with Dr. Mouat in the principle of not employing men upon unproductive labour if they wished to reform them. This was particularly so with regard to English soldiers, in whose case the humiliation of shot drill left the prisoners worse men than before. He quite agreed with Dr. Mouat and Sir Edmund Du Cane, that the moral effect of teaching men the advantages of industry and self control under the discipline of industry, would be the means of weeding out the criminal population and of raising up a generation that would, with other reformatory influences that were spreading in all directions, give their children the opportunity of seeing a happier, a more prosperous, more contented, and more virtuous race in this part of the empire.

The CHARITABLE ASPECTS *of* MEDICAL RELIEF.

By DR. STEELE.

[Read before the Royal Statistical Society, 21st April, 1891.
The President, Dr. F. J. MOUAT, M.D., F.R.C.S., in the Chair.]

SHOULD I be charged with presumption in bringing the important and much discussed question of medical relief to the sick poor of the metropolis under the notice of the Society, I can only reply that, having been engaged nearly all my life, here and elsewhere, in aiding the work and watching its incidence on the population, I may claim some little right to be heard on a subject teeming with so much significance. There are very few topics which have more engrossed the mind of the philanthropic world during the last two centuries than the question of how to make provision for the sick and injured when they have not the power of obtaining suitable medical aid for themselves. The problem is embarrassing in consequence of the agencies at work being often in antagonism, and it has now become a question of increasing importance whether the various measures employed cannot be improved so as to differentiate between the claims of the very needy and of such as are considered more suitable subjects for eleemosynary help, and if possible to discover a more effective system than at present exists for establishing an alliance between them. We all know how the sentiment of pity dominates our instincts with respect to the sick, and how it provokes a desire among rich and poor alike to afford ready help to the sufferer without much thought of his surroundings or of other social relations bearing on his case. It is mainly from this disposition and its consequences that most people who have studied the subject carefully, have arrived at the conclusion that medical charity is one of the main factors which contribute to the poverty and the want of self-help which characterise a large portion of the population, particularly that part of it which is understood usually to maintain itself by labour.

What amount of truth there may be in this belief I will not stop here to inquire; it is sufficient for our present purpose to know, that in no other country in the world have such vast efforts been made by voluntary agency alone to succour the sick and wounded, and that in the metropolis (to which these remarks must in the main be limited) these efforts have now been supplemented, and in a great measure superseded by the Local Government. At the same time the constitution and government of voluntary hospitals and medical charities in this country have always retained an individuality of their own, which is perhaps best expressed by a deep rooted aversion to outside interference, and a desire to manage their own affairs in their own way and without even the semblance of State control. This feeling of independence on the part of the medical charities has progressed with the intelligence and growth of the population, and any attempt to trammel it by means of divided authority would in all probability be attended with untoward results. In spite of such a forecast, which seems highly improbable, it is not less incumbent on us to watch with jealous care and scrutiny the moral results which any system of medical and voluntary charity has on its recipients, and to endeavour if possible to mitigate the evils which undoubtedly appertain to most arrangements which savour more or less of an indiscriminate or vicarious character.

Up to a period in the memory of most of us, it cannot be said that in London either the voluntary system of relief or that afforded by the poor law were commensurate with the needs of the population at ordinary times, and far less in the event of epidemic visitations. The few general hospitals which existed in the metropolis in the early part of the century, probably received their appellation on account of their receiving into their wards all kinds of disease, infectious or otherwise, forming thus the first line of defence against epidemics, while the workhouses were the abode of the indigent, the imbecile, and the aged. The few special hospitals which existed at the time were confined to small pox, fever, lying-in, and lock, and as epidemics occurred periodically, the two former always required to be supplemented largely at the cost of the rate payers, either by the construction of temporary buildings for the reception of the infected, or the patients were treated at their own homes by medical men appointed temporarily for the purpose by the local authorities. Voluntary aid in grappling with epidemics utterly failed, and notwithstanding a disposition on the part of vestries and poor law guardians to leave matters to the last, and to allow the medical charities to combat the attack as best they could, it was found imperatively necessary in the long run, in all great centres of population, to relegate the responsibility of providing accommodation and treatment to the local authorities, municipal or parochial.

The amendment of the poor law in England and Wales in 1834, and in Scotland in 1845, tended still further to throw the onus of medical relief for the poor on the parish authorities, by giving them more extensive powers to appoint medical men to posts of responsibility in connection with workhouses and poor houses, and to various parochial districts where there were increasing populations. These improved measures by no means paralysed the efforts of voluntary help. The desire to assist the deserving poor and to study their independence was as great as ever, and found expression in the large accession to the number of medical charities established about the middle of the present century in every centre of population throughout the country. In London, notwithstanding the vast addition to its population, the increase to the general hospital system has been less marked, but it has led to the development and growth of a large number of what it is customary to term special hospitals, including under this head harbours of refuge for the incurable, homes for the convalescent, hospitals for children and for diseases affecting special organs of the body, which were previously, and still are, admitted to the general hospitals. Besides these, a great impulse has been given to local dispensaries, situated usually in the poorest districts, where patients, besides being prescribed for at the central office, may be visited at their own homes by the doctors attached. Many of these are free, that is to say, they do not exact any payment from the patients, being supported either by charitable contributions, while some possess a considerable revenue from endowment. The majority of the dispensaries, however, are of a provident or semi-provident character, in which the patients pay something for the advice and medicine, either by registration fees or by a system of self insurance against sickness when they are well. There are numerous others, often called private and occasionally provident, established by one or more medical men in the poor districts, to which ailing people flock on account of the gratuitous advice. These are mainly the result of the struggle for existence which affects all professions, and whose constitution it would be unfair to deal too harshly with.

The hospital accommodation in London for general disease at the beginning of the century, amounted only to 1,830 beds, in seven hospitals, for a population which has been usually estimated at 864,000: each of the hospitals having the nucleus of a medical school attached to it. By the middle of the century this number was supplemented by five more, two of which were ostensibly founded to form parts of medical and educational institutions, while the others trusted they would also become schools for medical instruction, a hope in which they have not been disappointed. At this time, by additions to the older hospitals, and the acquisition of the new, the total number of beds available for ordinary purposes exceeded 3,000. In 1890, or forty years afterwards, the number of beds in these twelve institutions had increased to 4,685, not by overcrowding, but by successive additions to the original buildings, while seven other places established as general hospitals raised the total to 5,272. But this gives a very inadequate idea of what is done by voluntary effort for the sick poor of London. In addition to the hospitals already referred to as existing in the last century, there were six others founded about 1750, and within a few years of each other, which still retain their special character, and have not been materially added to, partly from motives of prudence, but mainly because their needs have been supplied by poor law legislation. These comprise four maternity hospitals, the lock hospitals (male and female), and the small pox hospital, now situated at Highgate, which appears to have become of later years a private and pay institution, and does not appeal to the public for support. In addition to these we have no fewer than 60 more special foundations, mostly the growth of the last half century, and indicative of the special branches into which medical science has a tendency to diverge. The number of beds provided by these amount to 3,616.

We have thus 86 hospitals in London, with a total accommodation of 8,888 beds, of which, from the statistics of the Charity Organisation Society, we learn that not more than 6,371 are, on the average, occupied. It may be taken for granted that these institutions were, and still are, intended for the poor, and that the poor take advantage of their privileges we have daily experience, and also that they show a distinct preference to participate in their benefits, rather than take advantage of the provision made for them by the poor law. It would be hard to blame them for this, when the facilities for admission to medical treatment are not clogged by subscribers' letters, or by payment, as is now the case in most general hospitals; but it is frequently alleged that these privileges are freely taken advantage of by others than, to use a common but somewhat misleading term, the deserving poor. Those who persistently urge this objection to hospital relief, do so less on the ground of the admission of patients to the wards as to the out-patient rooms, but if the abuse exists at all, it must be felt in both departments. It can be shown, moreover, that in the older hospitals the admission of patients to participate in the in-door treatment has undergone very considerable modifications since they were first established, and within the memory of some of us many of these changes have occurred. There was a time when no one, with the exception of persons suffering from accidents or requiring immediate surgical operation, was admitted to hospital without a subscriber's recommendation, and in the older and endowed hospitals without a governor's order, or a signed undertaking on the part of a householder to pay the patient's funeral expenses should he die, or to remove him when called upon to do so. The effect of this was to convert the hospitals into a species of almshouses, where the inmates had a good deal of their own way, were allowed out daily, to visit their friends or the public house, and if they returned in a state of inebriety, they were either discharged, or deprived of their beer on the following day, a plentiful supply of which was liberally supplied with their meals from the hospital brewery. As time advanced the old safeguards of governors' letters and other securities seem to have been gradually dispensed with, though not altogether, and patients were received according to their various degrees of urgency, and in keeping with their curative capacity and clinical interest, as they are now.

I must say I can hardly concur in the opinion one hears so often expressed, that contributors to hospitals should sacrifice their privileges of recommending patients for the general good of the community. By their recommendation they render themselves responsible that the social position of the applicant makes him eligible for relief, a fact which can hardly come to the knowledge of the hospital authorities in any other way; but it does not follow on this ground alone that the patient would be equally eligible for ward treatment, which must necessarily be left to the discretion of the medical officer. Other things as regards eligibility being about parallel, preference ought to be given to such as come fortified with a subscriber's order, and if the case is rejected, either from want of room or by being otherwise ineligible, notice of the same should be sent to the contributor, and the patient supplied with a letter to the out-patient department. It is, however, this latter aspect of medical relief, more than any other form in which it is administered, that is so frequently attacked by outside reformers, consisting mainly of aggrieved medical practitioners who consider that through the agency they are deprived of much of their livelihood, and by charity organisers in nearly all large towns, who insist that it demoralises the recipients by lessening their self respect, and contributes in this way to the national burdens. It is certain that although out-patient relief was not unknown at London hospitals in the early part of the century, and even dates back in some instances to a more remote time, it is mainly the growth of the last fifty years, and that from relatively small beginnings, it has rapidly acquired proportions which would seem to imply that in all large towns from a fourth to a tenth part of the population participate in it. The figures given by the Charity Organisation Society represent an annual total of 1,056,852 out-patients as attending the London hospitals; but it is impossible to arrive at an accurate estimate of these returns, from the want of uniformity of registration in different hospitals; and even in the same hospital in the various subdivisions into which the patients are classified. There may be a disposition on the part of some to exaggerate numbers either by entering the applicants afresh at every visit, or by limiting their cards or letters of attendance for short intervals, and by counting renewals as fresh patients. It may be assumed that a good muster roll of out-patients is more attractive than a smaller one in bringing money to the hospital treasury, but it is very delusive, and suffers greatly from competition, and we would probably not be far wrong in our calculation if we reduced the estimate of a million, as far as London is concerned, to a figure very considerably less. The growth of the out-patient relief in London is due to many causes, which, in all probability, exist in other places, though not so well defined, and one of these, and not the least important, is intimately associated with the first establishment of the special hospital. The means of maintaining the new offshoot at first are scanty, and the medical staff large in proportion to the in-door accommodation, so that it is necessary to cultivate a faculty in which there are small outgoings in comparison with one where there is the greater outlay for maintenance and administration. A main characteristic of most specialties rests in the fact that the complaints in question can usually be as readily treated in the out-door relief as in the hospital itself. We may quote for example, maternity, dental, ophthalmic, ear, throat, orthopedic, and to a less extent cutaneous diseases; most of which in their chronic though still curable condition require very long treatment, and if admitted into the hospital would occupy beds to the exclusion of others equally, if not more urgent, but whose diseases would reach a termination sooner. Following the example set them by the special, the general hospitals, especially such as are incorporated with medical schools, have found it necessary, not less in the interests of research and medical tuition, as in the maintenance of the character and reputation of the hospital itself, to adopt a system embracing most of the subsections of disease referred to, and which as a rule can be efficiently treated in the out-patient department. At the same time it is essential for the full equipment of a clinical hospital to increase largely the number of medical officers who conduct the in-door practice, and who must first pass through the grade of assistants, when their duties are for the most part limited to the various branches of out-patient work, general and special, though they may be engaged in teaching one or other of the numerous subjects into which the students' curriculum is divided.

It is probably to this cause more than to any other that the popularity of the hospital depends, and which has caused this feature of relief to attain such vast proportions as to necessitate means of repression to keep it within reasonable bounds. Such is necessary not only to satisfy the not altogether unreasonable demands of the general practitioner, but what is really of greater importance, to set bounds to a system which every wise philanthropist admits is not without its demoralising influence. On the other hand, the instructive benefits associated with it at all medical schools are now so universally recognised, that any attempt to substitute it by a less practicable and efficient system, or to abolish it altogether as some have suggested, would be highly prejudicial to medical teaching, as well as to the interests of a large portion of the population, who would thus be deprived of the means of consulting experts respecting their complaints, which it is not derogatory to the general practitioner to say were beyond his ken or operative skill. The vital question appears to resolve itself into, how to secure the right class of applicants for relief, and at the same time limit numbers in the event of these exceeding the provision made for them by the executive authorities of the charity. In any case, it is highly important that the claims of medical practitioners having patients under them for whom they desire a consultant's opinion, and who cannot afford the means of obtaining it, should be duly considered, as in fact they are in most hospitals to the advantage both of the practitioner and the patient; but the numbers sent in this way form but a small percentage of the thousands who come of their own accord.

Mr. Timothy Holmes, who has given much attention to the matter, having himself officiated as out-patient surgeon, holds that the duties of the medical officer should be limited entirely to consultation; but there is a very general feeling that such an alteration would be tantamount almost to the abolition of the department, and that it hardly could be proceeded with except in a new establishment wherein it was made a fundamental provision. It is highly probable that this was one of the chief, if not the main object, of the special hospitals when they were first thought of, and afterwards of the special departments of the general hospitals; but it is easy to see how the practice would drift into other channels apart from the recommendations of medical men. It is of course possible to put a limitation to numbers in voluntary hospitals where subscribers' recommendations are rendered imperative, unless indeed they are so numerous and exacting that they use up all their privileges; but here again the subscriber, though responsible for the suitability of the applicant in a social sense, is hardly the judge of his medical fitness. This problem however applies more particularly to in-door advice, and must be solved. if a hospital is to conduct its business soundly, by the verdict of the examining medical officers in conjunction with the beds at their disposal.

It is considered by many, and especially by those engaged in the organisation of charitable relief, that much might be done to check people from participating in privileges which are not intended for them, by a wholesome system of inquiry into their respective means of livelihood. Such a scheme has been attempted from time to time in several hospitals, and with results which are said to be not altogether unsatisfactory; but it is clear that to be efficient it must embrace an organisation of the most extensive kind, which would probably cost as much as the drugs dispensed, unless, which is far from improbable, it had the effect of vastly diminishing numbers, and this on the whole is not considered desirable. The truth is that the department is less subject to abuse than it is continually credited with, if the working classes are to be reckoned amongst the poor, which by common consent they undoubtedly are when disease attacks them. Apart from the advice, there is little to attract people of moderate means who can afford to pay the small charges of the provident and other paying dispensaries, and also the classes above them from seeking relief at an out-patient room. The long waiting which is unavoidable, the objectionable company they have often to keep, combined with the more or less publicity of diagnostic examination, are all deterring factors in the matter, and would prevent most fairly well-to-do people from taking advantage of the charity. At the same time it is taken advantage of by very large numbers, and to such a growing extent that opinions are pretty unanimous as to the expediency of its curtailment. There are not many ways by which this may be accomplished.

I have already referred to the doubtful process of inquiry. The restriction to advice only seems to limit numbers in the large hospitals of Edinburgh and Glasgow, and would probably have done the same in London had the system been introduced and maintained from the first. Sooner or later however it would have been found unsatisfactory, as there would have absolutely been no guarantee that the patients would obtain their medicine at all; and it would be hopeless to attempt such a retrograde course now as a remedy for the evil. The self-help principle of contributing something, however small, towards the hospital income, affords better prospects of success. The special as well as many of the general hospitals try to induce their applicants to contribute to the hospital or some samaritan fund connected with it; but unless this is done in a systematic way, and rendered imperative by the rules of the institution on every individual applicant, with proper safeguards lest any should suffer from their poverty, the results have been found from experience to be remarkably small. The registration contributions from out-patients at the special hospitals appear to range from a 1*d.* to 6*d.* each time they attend, and in some cases, in small provincial hospitals especially, a registration fee of 1*s.* covers the whole attendances. These contributions are understood to be levied before the applicant has the opportunity of seeing the doctor, and consequently the latter has no knowledge whether the patient is suffering from the disease he represents himself to have or from any malady at all, and it is quite possible that from among the mass of applicants the hospital might be receiving money under circumstances which illnatured people would probably call false pretences. It is very clear that in these quasi commercial transactions the medical officer should be relieved from all responsibility and participation; he has little to do with the social position of the patient or his rate of wages, and it is manifestly unfair to clog his usefulness, as is occasionally done, by inflicting on him what must be always a more or less disagreeable task.

At the same time, whether trivial charges are in force or not, it is equally incumbent on those to whom the management of hospitals is entrusted, that some measures should be taken to limit numbers and to reduce abuse to a minimum, in keeping with the altered condition of the times in which we live. That there is room for improvement scarcely admits of a doubt; the problem lies in the means of remedying it by some method which, while in an indirect way it would prove beneficial to the hospitals, should, at the same time, not be felt as a hardship by the patients. In a few free hospitals, whose popularity among the working class has attracted more than their due proportion of out-patients, it has been found necessary to limit the issue of daily cards and letters to a restricted number, and to send the surplus cases away, either to return on a future day or to get the coveted relief elsewhere. The alternative may appear harsh, and points to the necessity of sifting and selecting, so as to preclude the possibility of people being turned away whose complaints were either of a serious character, or could be readily benefited by medicine or surgical treatment. The process is not so difficult as might be imagined when account is taken of the large numbers who apply, among whom there is always a considerable proportion with very little the matter with them unless an abounding belief in physic. I know from experience that the rejected petitioners do not take kindly to the alternative in store for them, as they are pretty certain to attach an exaggerated importance to their own ailments, but it is almost the only way out of an embarrassing difficulty, with which out-patient departments of hospitals have to cope. Another plan, which has only been attempted on an extensive scale in one institution, is that adopted at Guy's Hospital, where the thin end of the wedge of the self-help principle has been at work for the last six years, first with the effect of considerably reducing numbers, and obviating the necessity of sending people away without advice. But of late years, notwithstanding the money obstacle, the numbers have increased to such an extent in one subsection at least as to necessitate a return to the former system of selection.

The mode of limiting numbers by insisting on nominal payment, was thoroughly well considered in all its bearings by the executive and medical staff prior to its adoption. To meet the objection generally urged by a large body of medical practitioners against the free and wholesale system of gratuitous relief, it had been resolved that a small charge, not enough to cover the net cost of the drugs and dressings, or to cope in any way with the general practitioner, should be made on each patient who could afford to pay it, for a weekly supply of medicine. The amount decided on was 3*d.*, and it was soon found that the contributions from this source had a considerable influence in benefiting the hospital by reducing the drug bill, and after a short time in diminishing the number of patients who flocked to this part of the hospital for continuous advice. Of course special measures were necessary to prevent the very poor from suffering, if they had not the means to pay their contributions, and arrangements were made accordingly which enabled them in the first instance to have their medicines free, and on the occasion of their second visit they were required to bring back with them an order stamped with authority from the Charity Organisation Society, stating whether they were in a position to be charged at all. There was no special reason why the Charity Organisation Society should have been charged with this office, because it might have been relegated to the clergy, or to respectable householders in the district in which the patients resided, but as the society has its officers for similar inquiries in all parts of London, and as they were willing to undertake the task, it was deemed advisable to employ them. The results on the whole have been satisfactory. The patients took kindly to the new arrangements, and very few expressed their inability to pay, while such as were referred to the society either did not return at all, or paid their money without demur on after occasions; in very few cases indeed have the agents of the Society stated that the applicants were unable to contribute. One effect of the measure however has been to increase the demand on what in all hospitals is termed the casualty department, reserved mainly for minor injuries, requiring mostly topical applications, but which is also invaded from time to time, at any hour of the day or night, by persons suffering from other complaints. It is very likely that many of these are shut out from not coming up to the time fixed for attendance at the out-patient rooms, and take advantage of the surgery or receiving room, which must always remain open; consequently the free prescriptions from this source which are put down to first attendances have a tendency to increase, as may be noticed in the following table:—

Free prescriptions, 1885........	3,080		Free prescriptions, 1888........	5,331
,, '86........	4,040		,, '89........	5,015
,, '87........	4,855		,, '90........	5,213

But the principle of self-help inculcated here has an equal if not more important bearing on the in-door medical relief, and it is interesting to know that our ancestors, long before out-patient relief was an established system, were fully alive to the necessity of a part of the maintenance being furnished by the patient or his friends, and at a period too when the so-called poor were very much worse off than they are in our time. This did not consist in money payments, but what amounted to the same thing, it necessitated the patients to provide certain articles of food, which our progenitors considered luxuries, but which we, in our advanced way, look upon as among the essentials of an ordinary diet. These consisted usually of such articles as tea, sugar, and butter, and some necessary articles of clothing and toilet requisites, which the destitute and friendless had either to go without or were indebted for to the good offices of a samaritan fund in connection with the hospital. The wholesome rule, which may be interpreted differently in keeping with one's individual bias, still exists in many of our leading hospitals, and affords a strong proof that the original founders desired that the persons petitioning for their privileges should not be entirely dependent on the hospital bounty. But apart from this deprivation, which may be looked on as a minor detail in favour of lessening the charges for maintenance, a movement has been taking place in many quarters by which persons of moderate means, unable to obtain the same at their own homes, may have the hospital privileges extended to them by payment. Mr. Burdett, in his work on "Pay Hospitals," drew special attention to the fact that in Great Britain we were behind the rest of the world in this form of hospitality; but since the matter has been taken up in its various forms, combined with the marked improvements introduced into the nursing and other arrangements of hospitals, a very great advance has been made.

Possibly the first attempt to introduce the pay system in this country arose out of the exigencies of most of the special hospitals, which must soon have realised the fact that their privileges were sought after by a class rather above those who habitually frequent general hospitals, and from whom a source of income to the hospital might not unreasonably be expected. Acting on a similar principle, nearly all establishments in aid of the sick which have been recently organised in London and throughout the country, especially cottage hospitals and convalescent homes, have adopted a like plan of self-support, by charging patients for their maintenance a varying amount according to their means, ranging usually from 2*s.* 6*d.* to 10*s.* a week. It is far from our purpose to assume that the bulk of the patients received into the hospitals, with or without recommendations, are not worthy objects of charity; on the contrary, it may be safely affirmed that they all are in different degrees, but judging from inquiries, about a tenth of the number would willingly contribute to their maintenance if they were asked to do so, either on their own account or through their friends or employers. The great mistake of the past has been in entirely ignoring this principle. But there is yet another class to whom the benefits of the hospitals have been in a great measure forbidden, and who, acting under the advice of their medical attendants, are desirous of securing the services of a hospital physician or surgeon, and good nursing, either in the ordinary wards or in more select and private accommodation, and are willing at the same time to reimburse the hospital for the outlay. It occurs not unfrequently that strangers and others occupying lodgings or living in hotels are taken seriously ill, or as often happens persons requiring surgical operations are in great difficulty from their inability to pay the fees of the expert, and to obtain the surroundings which would render their recovery more hopeful. It is clear that a practitioner anxious for the welfare of his patient, would in numberless instances prefer him to be removed to a hospital where the payments required would be in keeping with his resources. Notwithstanding the desideratum, it has been alleged by some that attempts to render a medical charity serviceable to a class a shade above those for whom it was originally intended, is inimical to the interests of the medical profession, and consequently ought to be discouraged. Now having had some six or seven years' experience of this system of co-operation in the hospital in which I have the honour to superintend, I can safely affirm from ample testimony, that it has been of essential service to the general practitioners, who in more than 90 per cent. of the cases admitted, have been instrumental in sending them to the hospital.

The people who have mainly taken advantage of the privilege are clerks, warehousemen, generally paid for by their employers, clergymen, medical men, and members of other professions, besides women of the middle class, who would have found great difficulty under other circumstances of having their diseases efficiently attended to. The number admitted in this way during the year 1890 amounted to 414, of which 226 were treated in the general wards, and 188 in the private department. This represents a total only of 7 per cent. of the patients treated during the year, and as the Charity Commissioners place a limit to the number of paying cases, it is not at all probable that it will exceed this figure in the future. As an instance of the views held by many medical practitioners with respect to partial payment for benefits received at the hospital, I will be pardoned for quoting from a letter in my possession from a well known general practitioner in the north-east of London, who has watched its operation. He says, "the system "adopted in your out-patient department in regard to payment "does a three-fold good, it elevates the people, relieves the hospital, "and benefits indirectly the general practitioner. I have found "too, very great convenience and advantage in being able to send "patients into your paying wards. There is a large class to whom "they are an inestimable boon." Another medical man, a teacher in a medical school, and living in chambers, writes me after a sojourn of six weeks in hospital, "the comfort and kindness which "I received at Guy's were priceless, and I shall continue to be "grateful to the fortune which led me to Bright's (private) ward "when I really felt that I was beaten, with no harbour to run to "for shelter." But there is no use of further piling Ossa upon Pelion to prove the manifest advantage of the pay system when viewed from the standpoint of public expediency. There is another aspect of the case which appeals more directly to the minds of hospital authorities who desire to keep their establishments in full working order. It is no uncommon thing to find in the public press statements to the effect that in one hospital or another beds are closed for want of funds. If it were at all possible to remedy the defect, however partially, by admitting a limited number of paying patients, as is done on an extensive scale and with great advantage at the London Fever Hospital, it would be an immense boon to the management, by enabling it to receive a larger number of free cases, and thus help to occupy the vacant wards.

The organisation and administration of a hospital, taking every thing into consideration, are permanent factors in relation to the expenditure of the establishment, whereas the bare cost of the maintenance of the patients, confining it to food and physic only, is a fluctuating quantity influenced by numbers, and in many hospitals costs less than a fourth or a fifth part of the total expenditure. Thus a patient paying, say, 1*l.* 1*s.* per week, although the amount barely covers the establishment charges, is yet sufficient to maintain himself and a couple of others as far as simple maintenance is concerned, the plant or machinery for a larger outlay remaining in continuous operation. It may be assumed that it was not the intention of the original founders, or of the bulk of the present supporters of hospitals, that their charitable work should become a source of profit. But if it can be shown that by the adoption of a co-operative system such as I have sketched out, the authorities are able still further to develop the resources of their separate establishments, meeting at the same time an acknowledged, if not a pressing want, it is surely their duty as well as their interest to promote it. There are not wanting signs to show that the co-operative system with regard to medical charities is being slowly but surely developed. The statistics published for the use of the Council of the Hospital Sunday Fund for the past year, indicate that a sum of 34,063*l.* was collected in the hospitals alone, which obtained grants from the Fund, to which must be added the revenue derived from a similar source at St. Thomas's Hospital, and the moneys paid by patients and their friends to various convalescent homes. The total amount realised in this way was 48,708*l.*, a sum which considerably exceeds the annual revenue of the Fund itself, and which is notably on the increase.

I have already referred to the absence of uniformity in the enumeration of out-patients as a chief cause of discrepancy in tabulating and comparing the returns of one hospital with another, and it is well that we should understand the general principles on which this department is mainly conducted. In all large hospitals there is a class which ranks in the category of regular out-patients, that is to say, by virtue of their ailments, as well as on the recommendation of benefactors or others interested, they are furnished with cards and prescription papers enabling them to attend for limited periods, ranging from a fortnight to two, three or more months, at varying intervals, but generally once a week. These it is estimated form in the leading hospitals from a fourth or fifth part to a half of the whole, and are weeded out from the mass in order that their complaints may be attended to by the regular visiting staff. It often happens that when their appointed term of attendance is exhausted they appeal for a renewal of their cards, and, if granted, the practice in most hospitals is to enumerate them as new patients. It is often estimated that although an out-patient is permitted to attend weekly for a lengthened period, his average attendances do not amount to more than three; still, many disappear after the first visit, while others may continue for years, with renewed cards, under the same medical officer. Along with the regulars, every general hospital has its out-patient work enormously increased by a multifarious accession of numbers which have been already referred to, and to whom, by common consent, the term casual is applied. The casuals, or casualties, are not bound by the restrictions as to appointed days and hours which govern the others, but come dropping in at any time of the day or even of the night to have their wants supplied, and they appear to grow in numerical proportion with the facilities afforded them by the hospital. They consist mainly of minor accidents from a cut finger to a broken rib, but in addition to those who have sustained some, for the most part trivial, injury, there is also a fair assortment of what are usually called medical cases, people who have not been fortunate enough to secure access to the ordinary out-patient room, persons desirous of gaining admission to the wards, and others seeking relief for a temporary ailment. If at all of a serious character these people are requested either to return on an appointed day and hour, or, if very ill, they may be taken into the hospital; but the vast majority disappear after they have had their wants attended to, their average attendance being about twice. In most hospitals where facilities exist for the treatment of casualties, it is found absolutely necessary to enlarge the accommodation for the purpose periodically. Here repression and limitation are out of the question, for in poor and populous neighbourhoods the lower classes look upon the relief they are in the habit of obtaining at the hospital surgery as their birthright.

In towns and cities out of London, and especially in the north, when an accident of a trivial character occurs, the impulse of the injured person or the bystander is to fly to the nearest chemist's shop, or, if a doctor is resident in the neighbourhood and has an open surgery, the probability is he would be taken there; but in London most people rush to the hospital if it is at all within reasonable distance. It is in this way that out-patients get multiplied, and it is highly probable that in numerous instances where the casual has to return to have his wounds seen to, his name is inserted afresh as a new patient, and a very erroneous impression conveyed as to the extent of the numbers to which relief is given. Notwithstanding this view, I believe there is a very general desire on the part of those to whom the management of hospitals is entrusted, to repress if possible the facilities for out-patient advice, especially in this casual department, if it could be done without hardship to the applicants. There was a time when more rigid restrictions were in force than are common now, when the duty of turning people away who were not considered suitable fell to the lot of the gate porter, who told them the days and hours at which they might attend; but the porter, not being infallible in his diagnosis, occasionally got into trouble. The responsible duty is now generally assigned to the resident medical staff of the hospital, and the task is sometimes not an easy one. To argue with a man, and especially with a woman, that there is little the matter with them might be thought injudicious, and to advise them to return at a more convenient occasion requires more time and resolution than writing out a prescription or administering a placebo. The desire is complied with without much demur about the patient's ability to pay his own doctor, or the inculcation of a moral lesson on the advantages of thrift, self-reliance, or the propriety of becoming a member of a provident dispensary.

As a remedy for vicarious and indiscriminate medical relief, none has met with such general favour, on the part of those who have the moral as well as the physical wellbeing of the working classes at heart, as the provident dispensary system so long advocated by the late Sir Charles Trevelyan, by Mr. Bousfield, and many others. It has been successfully worked in many towns and cities, especially in the north, and in the metropolis it is said to be gaining ground, though very slowly, among a thoughtful class of workpeople who have been induced to join the association. Its supporters aver they are sadly hampered in their efforts to diffuse the self-insurance principle among the poor, and we can well believe them, by the migratory character of the population, by the free dispensary, and by the out-patient departments of general and special hospitals. Mr. Bousfield, the chairman of the association which has developed this work, says that 15 of these dispensaries have been founded in different parts of London since 1852, and that last year 25,000 persons, representing 7,762 families, were entitled to relief from them, the income for the sale of cards to members amounting to 3,066*l.* This is not encouraging from a metropolitan point of view, and does not contrast well with the income derived from other dispensaries of a more or less provident character, notified in the statistics of the Hospital Sunday Fund; but it is slightly on the increase, and it has certainly the good wishes of all who look upon it as a scheme for benefiting the sick poor. As stated by the council of the association, one of its main objects was to relieve the hospitals of a large portion of their out-patients, and more recently a desire has been expressed on the part of the committee that branches of these provident dispensaries should be affiliated in some manner with the local hospitals for the purpose of enabling the patients to have consultative advice. This is really one of the main uses of the out-patient system at all hospitals, and is specially applicable to the special departments where patients are daily sent by outside practitioners for further advice, and it is not at all probable that members of provident dispensaries would be debarred a similar privilege. It frequently happens too that dispensary patients suffering from serious illness are despatched by their medical attendants to the hospital for in-door treatment, as it is difficult, if not impossible, to furnish them with the necessary nursing attendance at home; and should provident dispensaries become more general, the authorities of the existing hospitals would no doubt desire to aid them in a similar way, although not to the exclusion of other patients of an equally urgent character. Then, again, the mapping out of the metropolis into territorial districts, with an attempt to limit applicants for relief to the nearest hospital, would hardly meet the requirements either of the medical staff or of the patients themselves. Both in and out-patients naturally turn to the nearest hospital when they desire advice and treatment, but every hospital of long standing has a reputation and traditions of its own which attract people from all parts to participate in its benefits. If associated with a medical school, its former students, now in practice in distant suburbs and various parts of the country, seldom lose touch with their *alma mater*, frequently communicating with their old teachers when they have perplexing cases to deal with, and which they would wish to be treated in the hospital. These facts, combined with the necessity for repression so often referred to, renders the task of selection very difficult, and often unintelligible to the patients themselves as well as to the people recommending them, the frequent rejections, no doubt, originating the idea in the popular mind that it is only the "interesting" cases from a medical point of view that are now admitted to hospitals. This is true in a certain sense, inasmuch as the clinical interest involves as much the probability of the patient receiving benefit by a special line of treatment, medical or surgical, as it does a question of medical instruction.

Again, since governors' letters and other recommendations have been in a measure abandoned at the large general hospitals, patients are now mainly admitted on their various degrees of urgency, and in proportion to the vacant beds at the disposal of the examining officer. They are sometimes received in a semi-moribund condition, more often when their existence cannot be protracted over a few days, facts which tell so much on the mortality as to occasion an opinion, not shared by everyone, that the hospital which is doing most good is that which has the highest death-rate, since it receives the most urgently ill. Death-rate is a most fallacious guide in testing the condition of a hospital, whether in a sanitary or purely medical sense, and should never be made use of for the purposes of comparison without taking into account every circumstance connected with the nature and conditions of the ailments treated. The London hospitals associated with medical schools show much uniformity in this respect, the number of surgical beds being usually in excess of the medical, and the mortality seldom averaging more than 10 per cent. of the cases treated to a termination.

In connection with the development of the provident tenet as regards hospital treatment, it would be unfair to pass over in silence the laudable attempt which is being made in the east of London, mainly through the efforts of Sir Edmund Currie, to engraft the principle on what to all intents is a new hospital, "The "Metropolitan" in Kingsland Road. Here patients may be treated either in the out-patient section, or if necessary at their own homes, or in the hospital itself, by the payment of small monthly contributions during health and sickness. The experience of the system's working (which is an entire departure from that pursued everywhere else), although not by any means a success from a financial point of view, proves, I believe, the possibility of and the advantages which must accrue from its introduction into all future establishments founded for the benefit of the industrial classes. At the same time the obstacles in the way of a development of self and family insurance against sickness, on account of the time honoured practice of other and larger institutions, combined with the migratory character of the working population, are so overpowering, that it will be a hard struggle before the principle can be accepted by those whom it most concerns.

Closely allied with the active work of the hospital, general or special, unless it is one for incurables, is the period of residence allowed to the patients. This has a considerable range in different establishments, but usually averages about thirty days; surgical cases as a rule having a shorter stay than medical, while the latter are attended with three times the mortality of the former. Where there is a brisk ingress and egress of patients, as must necessarily be the case in a free hospital in a populous neighbourhood, it is hardly to be supposed that a mean residence of thirty days, although sufficient to restore health, is at all adequate to enable the discharged to return to their ordinary occupations. It is here that those valuable institutions, convalescent homes, prove of the greatest service even to the partially relieved, but they are unfortunately far too few and difficult of access to the 70,000 or 80,000 people who pass annually through the hospitals, without counting the legion of out-patients, to be universally serviceable. With the exception of Mrs. Gladstone's House at Woodford, for the poor of the east end of London, and another at the seaside, maintained by a city company, there are absolutely no establishments to which men, women, and children can be sent for change of air and scene, unless they are paid for. The principle may be right, but comparatively few hospital patients can afford to pay the very moderate charges, from 7*s.* to 12*s.* per week, required by these establishments, especially after a severe illness, which may have been temporary ruin to the bread winner. It is right to notice however that two hospitals, St. Bartholomew's and St. George's, have convalescent homes of their own, and there is now every prospect that the number may be still further increased. Most hospitals have samaritan funds attached as part of their constitution, the proceeds of which are worthily spent in the maintenance of a few convalescents in the country or at the coast, while a part may be used for furnishing surgical apparatus and clothing, and one hospital has a large fund for supplying out-patients with food.

Still when everything is done, there must always remain a residuary proportion of hospital patients suffering from chronic and often incurable maladies, who can hardly claim more than partial relief from their hospital sojourn. As a rule these are not considered eligible for convalescent homes, although they sometimes find access to them, but they are more frequently removed to their own homes by their families and friends, and possibly end their days in the union infirmary after we have lost sight of them. Every hospital in self defence is forced from time to time to get rid of homeless and friendless patients suffering from hopeless disease, by communicating with the local poor law authorities, and transferring such to the workhouse or infirmary. The transfer is easier accomplished now than it was twenty years ago, when questions bearing on the law of settlement, and other legal obstacles, interfered with this very necessary process.

The provision made for the sick poor in London by legislative authority is very extensive, and greatly exceeds, in fact more than doubles, that maintained by voluntary agencies. The figures given in the Appendix represent an aggregate of 17,440 beds, of which 13,747 are in the poor law infirmaries, and 3,693 are maintained by the Metropolitan Asylums Board for dealing with infectious diseases. This does not exhaust the entire number, as in addition to the figures given in the table there is a considerable number of sick in the sick wards of the workhouse, where the infirmary is not separate, and not taken account of in the abstract.

The sick poor housed in most of these infirmaries and asylums possess certain advantages which are denied the inmates of many of the hospitals. The majority of the infirmaries have been built within the last twenty years, when the sanitary requirements of hospitals have been better understood than they were a hundred years ago, and they are for the most part situated in the suburbs, with a considerable amount of open space around them. Unlike the hospitals, the poor law infirmaries are continually utilising most of their accommodation, the unoccupied beds only amounting to about a tenth, while in the hospitals they number nearly a fourth of the total accommodation. It is generally understood that these asylums are well officered, and in the larger infirmaries the chief medical officer is furnished with one or more assistants, but in no instance are there physicians and surgeons visiting regularly from the outside.

The class of ailments which are received into the infirmaries and workhouses are, as might be expected, of a more chronic and less hopeful character than those one meets with in the general hospital, and in the absence of accident cases and special complaints, they consequently partake more of a medical than of a surgical character. The mean residence of the patients being protracted indefinitely, and the fact of many hopeless cases being admitted, the mortality cannot be much less than 25 per cent. of those annually treated to a termination.[1] The exclusive character and restrictions placed on all poor law establishments in this country, have prevented the infirmaries from being employed for educational purposes, but there is a strong feeling that the material they command should be in some way utilised by medical men for the public benefit. It is not easy to see how this could be efficiently done unless they were more or less affiliated with some of the medical schools, and had visiting physicians and surgeons attached to them, as well as registrars for recording the more important clinical and pathological observations. It is generally believed that the appointment of lady visitors as well as medical men from the outside acquainted with the general arrangement of hospitals, would have a salutary influence in inducing guardians to attempt the training of nurses to attend on the sick, for although much has been accomplished in improving the nursing in many of these establishments, there are very few indeed where any serious attempt has been made to rear women for the purpose. It is also very generally recognised that so long as sick wards form an integral part of the workhouse, it is highly improbable that either the medical or the nursing attendance can be made satisfactory. In unions in most large towns, the separation is being gradually effected with great benefit to the sick, since they have usually the advantages of a resident medical man to attend them, as well as the services of a few trained nurses. Some rare forms of disease and others requiring much operative skill, occasionally find their way into poor law infirmaries, and become in a measure lost as an educational element, but there are other and equally prominent reasons why the two systems of charitable and poor law relief might be brought into alliance. The probability of poor law guardians opening up their establishments for scholastic purposes is not very great, but it would be an easy matter to bring about a union of interests, if the former sanctioned their district medical officers to send patients direct to the nearest hospital with a medical school, when their diseases were of an acute or unusual type, and instructive from a clinical point of view. There need be no loss to the hospital from this course, as it would no doubt be indemnified by an arrangement with the local authorities, undertaking to pay a reasonable sum for the maintenance of these sick people, which need not be more than it would cost to keep them in the infirmary. I refer particularly to this phase of semi-charitable relief, because it helps to solve a very knotty question, how a really poor man or woman may have the advantage of the skill, and be treated by consulting physicians or surgeons or specialists, a privilege which is now in a measure denied them, and because I know from experience it has been helpful alike to the patients and to the poor law medical officer.

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[1] Hospital mortality.

The practice which was not uncommon in times rather remote, has of recent years greatly fallen into abeyance, chiefly on account of the better accommodation provided by the poor law infirmaries, and possibly also from a desire on the part of guardians to supervise their own sick people. There are records in the possession of some of the older hospitals which show that at the commencement of the present century, and in all probability long before that, not only were paupers received at the request of guardians of neighbouring parishes, but also soldiers and seamen from the Royal Navy, the government authorities undertaking to pay 6*d.* a-day for them while in residence, a similar charge being made on the parish authorities for the treatment of their sick. By the year 1825 this charge at Guy's Hospital was increased to 9*d.*, at which figure it remained till 1866, when it rose to 1*s.*, and about ten years ago, in consequence of the increased cost of maintenance, it was doubled in amount, and still remains at 2*s.* a-day.

With regard to one important section of disease, I think it will be universally accepted that one of the greatest boons to the poor, as well as to the well-to-do of the metropolis, was the establishment of the Sick Asylums Board, and especially that portion of its work which deals with infectious disease. The present generation can hardly realise the anxieties and risks which the denizens of hospitals had often to undergo in times past, in being brought more or less into contact with persons suffering from contagious maladies. When an epidemic broke out, the hospital was always acknowledged to be the first harbour of refuge for the afflicted, and often in the same buildings—I am now speaking of two large hospitals I was connected with in the north—we had small pox as well as fever wards, and it was not at all an uncommon occurrence for patients who had recovered from one disease to be attacked by the other.

London was perhaps a little more fortunate than most large cities, as by the beneficence of former generations it has possessed a small pox hospital for one hundred and fifty years, and a fever hospital for ninety years, but in epidemic times these were found all too small to cope with the demands on them, and the poor were treated in their own homes, or in the workhouses, or in temporary structures attached to them. Provision for successive outbreaks of cholera was made in a similar way, the first brunt of the invasion falling on the hospital nearest the patient's residence. When, after a time, the necessity of isolation and separation were better understood, greater care was manifested in the admission and retention of the more infectious class of fevers, and as a rule they were not retained in the hospitals unless they had contracted the infection there. The Metropolitan Asylums Board, with its 3,700 beds, limits itself to the reception of the two forms of continued fevers, typhus and typhoid, to scarlet fever and small pox, and of recent years to persons suffering from diphtheria. It has not yet undertaken to grapple with measles, rötheln, or erysipelas, and it is doubtful whether it would be justified in doing so, unless on a very limited scale. One of the best features of the agency, as an undoubted help to hospitals, consists in the rapidity with which patients discovered to be suffering from scarlet fever or diphtheria, either in the wards or casualty rooms, may be transferred to infectious asylums. This is accomplished by a very perfect system of horse ambulance, and telephonic communication with most of the large hospitals, and the central establishment at Norfolk House, and entirely prevents the dangerous delay which was formerly experienced when these matters were in the hands of the local guardians. Fortunately small pox, in consequence of the numerous precautions taken to avert its spreading, has been in a measure stamped out in London, whilst scarlet and typhoid fever appear to make it their home. With respect to the latter disease, which is freely received into all the general hospitals, it is a moot question whether, from a sanitary point of view, we are justified in so doing. In some of the large provincial hospitals the rules are very explicit with regard to the non-admission of this type of disease, for which provision is made in the infectious hospitals by the municipal authorities, but I have never known any strong opinion expressed as to the expediency of forbidding typhoid patients to the general metropolitan hospitals, or of treating them in the same wards with others not similarly affected. The dangers of contiguity are reduced to a minimum, provided the number received do not average more than one or two say in a ward of 20 patients, with ample cubic space and means of .ventilation, besides adopting the few necessary precautions required in all cases of a more or less infectious nature. The instructive advantage to both students and nurses in watching the course of the disease, and of assisting recovery, are also very great, and so long as hospitals are to be the training ground for both, it is difficult to know how typhoid cases can be dispensed with.

It is argued also that the probabilities of recovery from typhoid are in proportion to the amount of air space free of infective products occupied by individual patients, and if there is any truth in the theory or practice, it would be a strong point in favour of the present system, which aims at limiting the numbers now treated in the general hospitals. That the hospitals for infectious diseases conduce to this limitation every one must admit who has watched their progress since their first establishment, for it would have been quite impossible otherwise to have found, through successive epidemics, suitable accommodation in the general hospitals for this class without seriously curtailing their utility for other and equally important purposes.

Intimately associated with the wellbeing of our medical charities and their occasional appeals for pecuniary help, is the cost at which it may be shown they are severally conducted. It is reckoned by the best authorities that the annual resources and disbursements for medical relief amount to something like three-quarters of a million sterling, probably more, and there is a natural desire, especially among contributors, to know whether this money has been spent to the greatest advantage. In arriving at anything like a fair inference, it is necessary that each establishment should be taken on its own merits. But with every disposition to show accuracy of accounts and properly audited balance sheets, we have to encounter great difficulty in arriving at a correct estimate of the standard cost of permanently occupied beds, which in fact is the only safe criterion left us for comparing the economic advantages of one establishment with another. This plan has been long adopted in the public services and in many hospitals, but attempts to introduce it into the accounts of metropolitan hospitals are usually frustrated by a fictitious value being placed to the credit of out-patients, which as already shown, are enumerated by a variety of different methods, in accordance with the custom or the caprice of the enumerator. Then again new buildings or extensive structural alterations when not apportioned to a separate account must necessarily be comprised under general expenditure. So also rents, rates, taxes, and other burdens may fall heavily on some, while others enjoy a comparative immunity, and in a few, not many, there are annuities in perpetuity, and often interest on loans which go far to swell the cost of average maintenance. Keeping these matters or most of them out of sight, or rather charging them in the column of extraordinary expenditure, one can readily ascertain the cost per occupied bed, by eliminating out-patients altogether, and finding a divisor in the daily number resident in the course of the year, a figure which is often conspicuous by its absence from many reports. We derive much scattered and at the same time trustworthy information on this important subject from statistics elicited from the various hospitals participating in the Hospital Saturday and Sunday Funds, also from the facts published by the Charity Organisation Society, and especially from Burdett's "Hospital Annual," which extends its observations to the most important curative institutions throughout the country.

From the various inquiries set on foot, we gather that apart from slight fluctuation in the average annual cost of a bed in the same institution, there are some scarcely accountable extremes, when a comparative analysis is made between one hospital and another. Small hospitals are usually thought to be conducted at greater expense than large ones; but in perusing the records referred to, this result does not always hold good. It is said also that hospitals with medical schools attached are more expensively conducted than those without them, and probably this is usually the case; but there appears to be a considerable range in average cost even in these establishments, and they are frequently exceeded in their expenditure by special hospitals. It is not easy to determine always what is, and what is not reasonable expenditure in a hospital; and it is far from my purpose to draw invidious distinctions between one hospital and another on account of high or low cost. It may be that the more costly give advantages which the others do not possess, and it would be manifestly unfair to prejudge any instance of supposed extravagant administration, without taking into consideration all the circumstances pertaining to the case. Charitably minded people who contribute to hospitals do so more readily when they know that the sufferers are well housed, well nursed, well fed, and well doctored, and these considerations weigh far more strongly than any disposition to economise in any one of these various branches of expenditure. On the other hand, it would be extremely satisfactory, if by general consent the authorities of the various hospitals agreed to the adoption of a system of accounts by which the current annual outlay could be apportioned, so as to represent the average income and expenditure in all departments, and the cost of the maintenance of each individual patient. Something of the kind has been rendered imperative by the Council of the Metropolitan Hospital Sunday Fund on its applicants for grants, and another though of a totally different complexion, is necessitated by the rules of the Saturday Fund. The statistics of the former, which are very valuable in many ways, and point to a good basis for further development, endeavour to draw a somewhat arbitrary rule between administration and maintenance, and also insist on an estimate of expenditure between out and in-patients, which in the very nature of things must always be more or less of a doubtful and speculative character. In the statistics referred to, the cost of an out-patient as given by the hospital authorities is shown to range from 9*d.* to 24*s.*, and it not unfrequently happens that the higher averages accord with an equally high average cost for permanently occupied beds, a circumstance rendered more significant by the discrepancies already referred to in the methods of enumeration of out-patients. Mr. Burdett in the "Hospital Annual" attempts to meet the difficulty by deducting from the ordinary expenditure 1*s.* per head for out-patients, and the Charity Organisation Society in their memorandum to the House of Lords, in making a similar calculation, allows 1*s.* 6*d.* per head, but it is clear, unless for the sake of uniformity, these amounts are misleading. It is far better to summarise results by dividing the ordinary expenditure without any deduction, by the average number of beds occupied, and eliminating out-patients altogether, as has been done in the table in the Appendix. Out of fifty-six London hospitals whose expenditure Mr. Burdett has taken pains to analyse, on his own basis, not less than twenty-one have an expenditure of over 100*l.* per bed, only two of these coming under the category of general hospitals, one of which is a general hospital associated with a medical school, and the other not so affiliated, while the remainder are special hospitals, some of which considerably exceed the amount specified. Of the remaining thirty-five, nine, comprising four general and five special hospitals, ranged from 80*l.* to 100*l.*; twenty from 60*l.* to 80*l.*, and six from 50*l.* to 60*l.* per occupied bed. Apart from the above group of fifty-six, thirty other hospitals whose expenditure is analysed did not reach 50*l.* a bed, the lowest on the list being a special hospital of acknowledged merit, where the average cost is seldom seen to exceed 32*l.* a bed. As we might expect, expenditure has a tendency to diminish in proportion, some might say, with the distance from London. Of sixty-six provincial hospitals only one has an expenditure over 100*l.*, and two between 80*l.* and 100*l.*, all being general hospitals. Nine have an average cost between 60*l.* and 80*l.*; twenty-nine over 50*l.*, and twenty-five between 40*l.* and 50*l.* per occupied bed. They manage these hospital matters much more economically in Scotland and Ireland. Out of seventeen Scotch hospitals whose expenditure is analysed in the Annual, none have an expenditure over 70*l.* a bed, 2 range between 60*l.* and 70*l.*, and two between 50*l.* and 60*l.*, while of the remaining thirteen, ten average between 40*l.* and 50*l.*, and three are under 40*l.* a bed.

The Irish hospitals appear to be marked by a considerably wider range of expenditure than the Scotch, for out of sixteen institutions, one, a county hospital, treated its patients at a cost of over 100*l.* a bed, although details are not forthcoming, while three are entered at a cost from between 20*l.* and 30*l.*; of the others, one is represented as costing over 80*l.*, a special hospital, four over 50*l.*, four between 40*l.* and 50*l.*, and three between 30*l.* and 40*l.* a bed.

It is not easy to account for these great discrepancies in individual cost in hospital administration, and one cannot help feeling that if anything of a similar kind occurred in the public or local government service, it would be made the subject of anxious inquiry, with a view to explanation and possible remedy. There is a certain control by the State over the Dublin hospitals, which besides being exempt from taxation, which all hospitals are in Ireland, receive an annual grant from the government, on account of which they have to submit to periodical inspection and criticism, and they are certainly conducted at a small average cost in comparison with similar establishments in England. As it is not at all probable that a similar bounty will be extended to London hospitals, it is equally improbable that the hospital authorities will be induced to forego their independence and invite any outside jurisdiction to control their affairs.

In one respect the majority of the London general hospitals, and these the largest, differ essentially from those in other parts of the kingdom, in comprising within their territorial limits all the adjuncts necessary for a complete medical education, which in cities of less importance are divided between the universities or other collegiate establishments and the local hospitals.

It is reasonable to suppose that had their promoters foreseen that this would be the future purpose of these establishments, they would have taken care to secure the object by incorporating it with their original charter, and by providing adequate space for it in juxtaposition to the hospital. That the aim was not only legitimate, but of paramount necessity, is shown by the history of these establishments, which, from small beginnings, occasioned by a thirst for practical knowledge on the part of outside practitioners and apprentices, became, in the absence of teaching colleges or universities, regular schools of medical instruction, in which all branches of the art were taught. By the alliance the hospitals gained largely their importance and reputation, not alone as curative institutions, but also as places where medical research could be conducted with profit and advantage. The healthy rivalry engendered by a multiplicity of clinical hospitals has also had its effect in securing the services of the *élite* of the medical profession to attend the sick, while the scholastic department has provided an abundance of unpaid assistance in the shape of dressers and subordinate medical officers to attend to minor details of treatment. Nearly all the advances made in medicine and surgery have either had their origin in hospitals, or have had their efficacy confirmed there before coming into general use, an aspect of the question which is apt to be lost sight of in connection with the claims of these charities for voluntary assistance. Now that an entirely fresh impulse has been given to the study of the etiology and prevention of diseases, both in a physiological and pathological sense. it is not too much to hope that, following the example of other countries, the Government may be induced to establish a central institute in London in connection with the great hospitals for the prosecution of these inquiries. Whether or not, the credit, as well as the responsibility of combating disease and prolonging life, must in the future, as in the past, rest mainly with these establishments.

It is often said, and with a certain amount of truth, that our medical charities fail when they are most wanted, thus necessitating the intervention of government agencies to relieve the strain of voluntary help. We have shown how this may be the case in the event of people being discharged from hospitals before they are well enough to return to their ordinary employment, and in the rejection of others, suffering from hopeless disease, for which ample provision is now afforded in the union infirmaries. A refuge has also been found for most of the infectious disorders, although difficulties occur from time to time with regard to measles, which occasionally assumes a malignant type, and is a disease not admissible either into the voluntary or rate-supported hospitals, and must consequently be treated often in poor and insanitary surroundings. Such is also the case, although to a less marked extent, with regard to the disease termed erysipelas, which, if a general hospital must be kept free from septic infection, should have no place in its wards. People who are moderately well off can have their relatives admitted by payment to the London Fever Hospital, but this privilege does not extend to cases of diphtheria, for which ample provision is made in the infectious asylums and more sparingly in the general hospitals, but there is certainly a want felt in the absence of paying accommodation for this often inveterate form of disease. Doubtful cases of mental alienation with or without some physical malady frequently find their way into the wards of general hospitals, and are often difficult to deal with, although when the mental affection is pronounced there is now as a rule little trouble in getting the union authorities to dispose of them. Perhaps no class is so badly provided for as those subject to attacks of delirium tremens, who, unless they have attempted self destruction or have met with serious injury, are as a rule not admissible to the general hospitals. Occurring in private life they prove a source of terror and danger to friends and relatives, and it is much to be regretted that some provision is not made by legislative authority for their temporary detention in buildings other than the parish workhouses, to which the majority of these cases are sent after being rejected at the hospitals.

Hospitals, like most public institutions, have their grievances to contend with, and not the least of these arises by virtue of their situation in or near crowded thoroughfares, where they cannot escape from the noise and tumult incidental to London life, which is especially accentuated in the case of the sick, who above all others require quietude and repose. The passage of vehicles, from a cab to a traction engine, during the day and part of the night disturbs the doctor as well as the patient, and, circumstanced as we are, must be borne with, although it is but fair to state that the local authorities when appealed to, do their best to mitigate the evil by supplanting the granite roadways round the hospital with wood or asphalte. But the disturbance from vehicular traffic is trifling when compared with the noises, especially at night, occasioned by fife and drum and brass bands, interspersed with the brawls of men and women, who make night hideous with their discord, and whose language as a rule is particularly objectionable to sick people. For these and similar annoyances there appears to be no redress, as the police are powerless to check it so long as the offenders keep moving on. As summer comes round, and it is necessary to have the ward windows open at night, the grievance becomes more acute, as one may judge from the annual appeals made to the daily press by sufferers who find some satisfaction in airing their afflictions to a sympathetic public unable to suggest a remedy. It is said that the nuisance complained of would not be tolerated in continental cities and towns, and if such is the case we must continue to pay dearly for our personal liberties.

Medical charities, like others, suffer from legal restrictions. They are precluded from receiving gifts of landed property by the law of mortmain, and there can be no doubt that in consequence of the law many hospitals have been deprived of bequests which would otherwise have advanced their usefulness. Attempts have been made and are still being actively organised to remove this enactment from the statute book; and as everyone acknowledges that all facilities should be given to the charitable with respect to their testamentary dispositions, it is highly desirable that the difficulties and perplexities often occasioned by the statutes in question should be amended, at all events in favour of medical charities.

There is yet another grievance from which medical charities suffer, and all the more acutely from its being of modern growth. It is well known that by the provisions of the poor law of Queen Elizabeth all charities were exempt from local taxation, and most people are under the impression that they still enjoy this immunity. This is not the case however, for by an unfortunate decision of the House of Lords in the year 1866, local authorities in various places, mainly in the south of England, began to exercise what was afterwards considered to be their legal right to impose taxation on charities in accordance with a true or factitious value of the premises they occupied. The history of this change of procedure on the part of parochial and other assessing authorities is peculiar, and contains within itself sufficient evidence to warrant the hope that if the entire circumstances connected with the new interpretation of the law were brought under the notice of Parliament, there is every probability that an exemption which had existed for a period of two hundred and sixty years would be restored. It is hardly conceivable that institutions established for the relief and maintenance of the sick poor, should bear the national burdens for a similar purpose outside their jurisdiction.

It is also strange that the case which has brought about the legal decision so adverse to the hospitals should have had no connection with a charitable trust, but was essentially of a municipal character, originating with the Mersey Docks and Harbour Board declining to pay rates, on the ground that they were rendering public service to the community in a similar way to public charities, which had always enjoyed the privilege of exemption from public rating. After repeated decisions in favour of this view, the case was finally decided against the Board. but no opinion was ever given either for or against the rating of public charities, although the decision has acted as a precedent for taxing all charities unless they had been made specially exempt by Act of Parliament. The incidence of the tax is peculiar, and in no part of the kingdom has its anomalous and inequitable character been so marked as within the metropolitan area, where from some cause or other the rental value of the different hospitals and adjacent grounds has been fixed from time to time in a manner that no one can fully comprehend. The rates increase with successive valuations, as do other burdens, and there is a very general feeling that the inequalities so palpable ought to be redressed, or, better still, that the impost should be abolished altogether. The introduction of a short Bill in Parliament for this purpose has often been talked of, and judging from the opinion so universally expressed in favour of the restoration of the exemption, there is every reason to believe it would meet with acceptance by the legislature.

In concluding these remarks on a subject which is of perennial interest, it is very difficult to divest our minds of what almost amounts to a conviction, that much more might be done with the means at our disposal, if the charity so vicariously dispensed was organised so as to insure its conferring on its recipients the largest amount of good with the smallest modicum of evil. To accomplish this without giving offence to vested and individual interests, not less than to the voluntary impulse which is the mainspring of all charity, is the complex problem of the day. That it is very difficult of solution, all who have thoughtfully considered the subject are willing to admit, but that an earnest attempt to deal with the matter in its collective capacity should be made cannot be denied, and there are not wanting many signs and suggestions by which the desideratum may be approached. Dr. Mouat in his recent presidential address has sketched out a scheme for the organisation of a central board to regulate, control, and supervise the medical charities of the metropolis, and few who have studied the subject in a liberal and philanthropic sense can fail to discern that such a board, with the full confidence of the contributors, would prove of immense service in collecting statistics bearing on the medical and social economy of our hospitals, and valuable for reference and comparison. That there is no lack of information to be obtained may be judged by the annual reports of most institutions; but all agree that from a want of uniformity in the collaboration of details they are practically useless for purposes of comparison, and equally so for collective investigation. The information elicited by the council of the Hospital Sunday Fund, and in a less degree by the Saturday Fund from those institutions seeking for aid, prove how a uniformity of returns may be assured where a substantial benefit is to be gained; and there is no reason why, in the interests of the community at large, these bodies should not amalgamate so far as to place their accounts on a similar basis with respect to the information they respectively desire. The addition of a few queries to their schedule of inquiry, bearing on the annual mortality, sanitary condition, the character of infectious diseases which may have been admitted, or may have had their origin in the hospital, along with other matters of like importance to the health of the establishments, would prove of great value when properly arranged and tabulated. Then again with respect to the economic working of the hospitals, it would hardly be necessary to insist on a uniform system of book keeping, as is frequently done, if the returns called for were sufficient to meet all reasonable requirements with regard to the various items of income and expenditure, discriminating in the latter case between the outlay for patients and that for the maintenance of the establishment. The associations referred to are possessed of the requisite machinery for undertaking this responsible duty. They each have their assured income, coupled with power of distribution, and as there is every prospect of the increment being annually added to, it appears hardly possible to name any other central authority which would be more conveniently applicable for eliciting the necessary statistics. The suggestion of an alliance between two associations working for the same object on similar though not on parallel lines, need not affect the autonomy of either body, especially with regard to their systems of awards, which are made ostensibly on the needs and merits of the various institutions expecting to be benefited, but as a rule are interpreted from very different points of view.

I.—*Table showing the Number of Beds in each Poor Law Infirmary in the Metropolis, and in each Hospital under the Metropolitan Asylums Board.*

Poor Law Infirmaries.	Number of Beds.
Bethnal Green	688*
Camberwell	331
Chelsea	386
Fulham	486
St. George-in-the-East	416
St. George's	776
St. Giles and St. George, Bloomsbury	See Central London Sick Asylum
Greenwich	538
Hackney	437
Hampstead	136*
Holborn	625
Islington, St. Mary	540
Kensington	604
Lambeth	622
Lewisham	281*
London, City of	645
Marylebone, St.	744
Mile End Old Town	469
Olave's, St.	388
Paddington	284
Pancras, St.	523
Poplar	See Poplar and Stepney Sick Asylum
Saviour's, St.	786
Shoreditch	472
Stepney	See Poplar and Stepney Sick Asylum
Strand	See Central London Sick Asylum
Wandsworth and Clapham	618
Westminster	See Central London Sick Asylum
Whitechapel	689
Woolwich	213
Central London Sick Asylum	264
Poplar and Stepney Sick Asylum	586
Total	13,747

Hospitals under the Metropolitan Asylums Board.	Number of Beds.
Eastern—Homerton Fever Hospital	442
North-western—Hampstead Fever Hospital	415
Western—Fulham Fever Hospital	262
South-western—Stockwell Fever Hospital	402
,, eastern—New Cross Road Fever Hospital	462
Northern—Convalescent Fever Hospital, Winchmore Hill	480
Hospital ships—small pox	350
Gore Farm—Small Pox Convalescent Hospital	880
Total	3,693

In cases marked * the number given is approximate, as the accommodation of the infirmary is not fixed separate from the workhouse.

There is a considerable number of sick in the sick wards of workhouses not referred to in the above returns.

—Statistics prepared for the Council of the Metropolitan Hospital Sunday Fund from information supplied from the various Institutions participating in Grants from the Fund.

he tables show the amount of Accommodation and Average Number of Beds Occupied during the Year 1889; *also the Cost per Occupied Bed calculated on the Gross Annual Expenditure, taken on an Average of Three Years, excluding Investment of Legacies, Transfer of Stock, &c., and disregarding the Number and Cost of Out-patients.*]

Name of Hospital or Institution.	Number of Beds.	Average Number of Beds Occupied Daily last Year.	Number of Patients last Year.		Average Annual Expenditure.	Average Annual Cost per Occupied Bed.
			In.	Out, and Midwifery.		
GENERAL HOSPITALS.					£	£
ring Cross Hospital	175	143	1,948	21,432	14,255	100
nch Hospital	36	28	366	3,862	2,600	93
man ,,	125	105	1.199	23,326	9,301	89
at Northern Central Hospital	68	61	861	15,563	4,790	79
’s Hospital	600	418	5,385	40,014	34,262	82
ian ,,	20	13	232	2,723	842	65
g's College Hospital	218	163	2,189	19,592	20,005	123
don Hospital	776	622	8,503	109,839	56,714	91
ropolitan Hospital	76	47	489	9,482	4,357	93
er Hospital and Royal Kent Dispensary	24	20	226	11,781	3,319	166
th-West London Hospital	47	39	537	13,906	3.473	89
lar Hospital	50	37	745	12,057	3,064	83
al Free Hospital	160	133	2,019	24,374	10,618	80
George's ,,	351	316	4,029	26,459	27,662	88
John and Elizabeth Hospital	51	47	96	—	1,574	33
Mary's Hospital	281	251	3,451	27,265	21,195	84
nen's Hospital Society	225	186	2,401	6,914	11,707	63
Middlesex Hospital	307	254	2,948	38,830	26,394	104
ning Hospital, Tottenham	103	59	801	7,559	3,962	67
versity College Hospital	207	179	3,007	41,273	19,706	110
t London Hospital	101	87	1,283	21,980	5,638	64
tminster ,,	205	175	2,572	25,031	14,117	81
SPECIAL HOSPITALS.						
of London Hospital for Diseases of the hest, Victoria Park	164	109	962	14,847	10,103	93
pital for Consumption, Brompton	321	275	1,669	13,845	25,839	93
th London Consumption Hospital, Hamp-ead	48	45	348	2,898	4,546	101
al Hospital for Diseases of the Chest, ity Road	80	41	407	5,609	4,777	117
al National Hospital for Consumption, entnor	132	111	759	—	9,745	88
lsea Hospital for Women, S.W.	60	39	404	3.504	3.488	89
pital for Women, Soho Square, W.	66	49	632	4,896	7,009	163
svenor Hospital for Women and Children, incent Square	14	11	103	2,232	1,062	97
Hospital for Women, Euston Road	26	22	265	4,068	2,041	93

Note.—Fractions of 1*l.* under 10*s.* have been disregarded in the above entries; 10*s.* or above been entered as 1*l.*

II.—*Statistics prepared for the Council of the Metropolitan Hospital Sunday Fund—Contd.*

Name of Hospital or Institution.	Number of Beds.	Average Number of Beds Occupied Daily last Year.	Number of Patients last Year.		Average Annual Expenditure.	Average Annual Cost per Occupied Bed.
			In.	Out, and Midwifery.		
Special Hospitals—*contd.*					£	£
Royal Hospital for Children and Women, Lambeth	50	46	354	7,105	3,420	74
Samaritan Free Hospital, Lower Seymour Street, W.	54	50	521	5,053	5,204	105
Cancer Hospital, Brompton, S.W.	105	80	679	1,099	8,643	108
London Fever Hospital, Islington, N.	220	54	538	—	8,884	165
Gordon Hospital for Fistula, Vauxhall Bridge Road	11	9	158	505	948	105
St. Mark's Hospital for Fistula, City Road, E.C.	34	22	286	856	2,148	98
National Hospital for the Diseases of the Heart and Paralysis, Soho Square	25	18	114	2,168	2,012	112
Female Lock Hospital, Harrow Road, W.	135	96	721	—	3,806	40
Male Lock Hospital, Soho, W.	20	14	251	3,434	1,359	97
Hospital for Epilepsy, Paralysis, and other Diseases of the Nervous System, Regent's Park	25	22	94	751	2,330	106
National Hospital for the Paralysed and Epileptic, W.C.	175	148	747	3,655	10,229	69
West End Hospital for Diseases of the Nervous System, W.	10	9	41	985	1,623	180
Central London Ophthalmic Hospital, Gray's Inn Road, W.C.	13	4	155	8,014	1,142	—
Royal London Ophthalmic Hospital, Moorfields, E.C.	100	96	2,337	26,865	6,190	64
Royal South London Ophthalmic Hospital, St. George's Circus, S.E.	(Rebuilding)		19	6,323	1,130	—
Royal Westminster Ophthalmic Hospital, Charing Cross, W.C.	50	25	323	7,956	1,814	73
Western Ophthalmic Hospital, Marylebone Road, W.	20	4	63	2,296	595	149
City Orthopædic Hospital, Hatton Garden, E.C.	27	18	140	2,550	1,459	81
National Orthopædic Hospital, Great Portland Street, W.	35	31	136	827	1,143	37
Royal Orthopædic Hospital, Oxford Street, W.	50	50	129	1,176	2,100	42
Hospital for Diseases of the Skin, Stamford Street, S.E.	10	2	17	5,873	993	—
Central London Throat and Ear Hospital, Gray's Inn Road, W.C.	16	13	230	6,257	1,943	149
Royal Ear Hospital, Frith Street, W.	9	4	102	2,765	695	174
Hospital for Diseases of the Throat, Golden Square, W.	20	18	419	6,593	2,684	149
London Homœopathic Hospital, Great Ormond Street, W.C.	94	55	711	9,486	4,881	89
London Temperance Hospital, Hampstead Road, N.W.	77	57	735	2,873	5,267	92
Dental Hospital of London, Leicester Square, W.C.	—	—	—	34,400	1,683	—
National Dental Hospital, Great Portland Street, W.	—	—	—	23,159	843	—

II.—*Statistics prepared for the Council of the Metropolitan Hospital Sunday Fund—Contd.*

Name of Hospital or Institution.	Number of Beds.	Average Number of Beds Occupied Daily last Year.	Number of Patients last Year.		Average Annual Expenditure.	Average Annual Cost per Occupied Bed.
			In.	Out, and Midwifery.		
CHILDREN'S HOSPITALS.					£	£
Alexandra Hospital for Hip Disease in Childhood	81	81	140	105	2,659	33
Belgrave Hospital for Children	23	17	220	2,555	1,469	87
Cheyne Hospital for Incurable Children	24	24	35	—	1,418	59
East London Hospital for Children, Shadwell	102	78	1,074	18,218	6,757	86
Evelina Hospital for Sick Children, Southwark	60	52	603	5,520	5,438	105
Home for Incurable Children, Maida Vale	30	29	37	—	1,347	46
„ Sick Children, Sydenham	45	40	277	1,649	1,428	36
Hospital for Sick Children, Great Ormond Street	181	91	928	18,896	11,103	122
North Eastern Hospital for Children, Hackney Road	55	37	531	14,550	4,801	130
Paddington Green Hospital for Children	27	23	400	10,789	2,277	99
Victoria Hospital for Children, King's Road, Chelsea	90	79	1,193	14,427	5,309	67
"The Vine," Sevenoaks	17	16	32	—	1,001	61
LYING-IN HOSPITALS.						
British Lying-in Hospital, Endell Street, W.C.	16	8	148	600	1,568	—
City of London Lying-in Hospital, City Road, E.C.	35	20	422	1,499	3,385	—
General Lying-in Hospital, Lambeth, S.E.	24	21	484	1,091	3,047	—
Queen Charlotte's Lying-in Hospital, Marylebone Road, W.	56	39	995	1,179	3,464	—
CONVALESCENT HOMES.						
Metropolitan Convalescent Institution, Walton-on-Thames	500	221	3,389	—	6,830	31
Bexhill Convalescent Home, Bexhill-on-Sea	110	70	1,152	—	2,695	39
All Saints' Convalescent Hospital, Eastbourne	300	243	3,354	—	5,646	23
Burstead Cottage Convalescent Home for Children	4	4	47	—	97	24
Mrs. Gladstone's Convalescent Home, Woodford	92	53	915	—	1,401	26
Hanwell Convalescent Home	35	24	259	1,221	673	26
Herbert Convalescent Home, Bournemouth	33	15	194	—	1,512	102
King's College Hospital Convalescent Home, Hemel Hempstead	40	24	393	—	1,869	78
Mrs. Kitto's Convalescent Home, Reigate	28	21	310	—	627	30
Mrs. Marshman's London and Brighton Female Convalescent Home	134	117	2,854	—	3,619	31
Mary Wardell Convalescent Home for Scarlet Fever	40	16	211	—	2,371	143
Morley House Convalescent Home for Working Men	36	25	450	—	929	37
Princess Frederica's Convalescent Home, East Molesey	7	5	86	—	673	135
Children's Convalescent Home, Ramsgate	36	7	95	—	560	80
St. Andrew's Convalescent Hospital, Clewer	85	75	717	—	3,258	43
„ Home, Folkestone	100	95	1,540	—	3,216	34
St. Barnabas' Convalescent Home, Ramsgate	34	9	140	—	335	37

II.—*Statistics prepared for the Council of the Metropolitan Hospital Sunday Fund—Contd.*

Name of Hospital or Institution.	Number of Beds.	Average Number of Beds Occupied Daily last Year.	Number of Patients last Year.		Average Annual Expenditure.	Average Annual Cost per Occupied Bed.
			In.	Out, and Midwifery.		
					£	£
CONVALESCENT HOMES—*contd.*						
Convalescent Home for Poor Children, St. Leonard's-on-Sea	75	56	724	—	1,435	26
St. Mary Magdalene's Convalescent Home, Paddington	31	30	59	17	842	28
St. Michael's Convalescent Home, Westgate-on-Sea	28	16	281	—	643	40
Seaside Convalescent Hospital, Seaford	75	57	751	—	3,658	64
COTTAGE HOSPITALS.						
Beckenham Cottage Hospital	13	7	67	—	559	80
Blackheath and Charlton Cottage Hospital	21	9	114	540	813	90
Chislehurst, Sidcup, and Cray Valley Cottage Hospital	13	7	71	—	552	79
Eltham Cottage Hospital	10	7	78	—	318	45
Enfield ,,	11	4	39	—	289	72
Epsom and Ewell Cottage Hospital	10	7	78	—	552	79
Reigate and Redhill Cottage Hospital	18	13	181	—	844	65
Shedfield Cottage Hospital and Convalescent Home	7	4	44	165	196	49
Sidcup Cottage Hospital	7	5	66	—	320	64
Wimbledon Cottage Hospital	11	7	126	—	459	66
MISCELLANEOUS.						
Establishment for Gentlewomen, Harley Street	25	12	128	—	2,380	198
Hampstead Home Hospital and Nursing Institute	18	10	118	—	1,619	161
National Sanatorium for Consumption, Bournemouth	63	43	225	—	2,154	50
Royal Sea Bathing Infirmary, Margate	220	162	670	35	9,243	57
Invalid Asylum, Stoke Newington	28	23	207	—	1,036	45
Firs Home, Bournemouth	20	16	60	—	1,279	80
St. Catherine's Home, Ventnor	12	8	43	52	1,212	151

III.—*Table giving a Retrospective Summary of Patients Treated in and at Guy's Hospital during the last Ten Years, with Results of Treatment, and showing the Development of Special Sections of the Out-patient Division.*

	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	1890.
1. *In-patients.*										
Under treatment each year	4,923	5,150	5,121	4,956	4,963	5,204	5,385	5,453	5,828	6,189
Discharged cured or relieved	3,694	4,001	3,904	3,764	3,837	4,031	4,290	4,343	4,697	5,119
Unrelieved	329	258	317	305	230	284	219	181	184	132
Died	465	451	487	485	477	486	473	505	505	512
Mortality per cent.	10·3	9·5	10·3	10·5	10·4	10·1	10·5	10	9·3	8·8
Mean number daily resident	456	453	446	412	412	410	417·7	415·7	419·3	432·4
Average number of days resident	36·7	34·4	33·1	34·4	33·1	31·4	30·2	30	28·4	27·3
Accidents admitted	994	997	940	994	920	1,008	933	1,107	1,158	1,365
Deaths from accidents	78	72	59	66	58	68	71	92	75	81
2. *Out-patients.*										
Surgical patients	3,195	3,661	4,177	3,623	2,777	2,758	2,186	2,382	1,782	2,075
Medical "	2,843	2,703	2,688	2,595	2,745	2,685	2,424	2,511	2,419	5,476
Ophthalmic affections	2,286	2,502	2,613	2,268	1,856	1,549	1,468	1,544	1,735	1,683
Diseases peculiar to women....................	1,277	1,400	1,595	1,438	1,514	1,687	1,585	1,800	2,000	2,182
Skin diseases	923	1,013	989	919	898	889	951	1,188	1,650	1,878
Ear "	939	1,107	1,308	1,021	915	763	681	795	810	904
Throat affections	—	—	—	—	—	14	245	375	485	544
Dental complaints, extractions	—	—	—	—	—	2,785	3,850	4,775	4,155	7,344
Other dental operations	—	—	—	—	—	—	—	—	—	5,377
Minor medical cases	—	—	—	3,120	3,040	3,038	2,436	3,700	4,920	920
" surgical "	—	—	—	4,160	4,080	3,175	3,365	3,251	4,307	3,933
" accidents or casualties................	13,170	12,109	12,907	12,760	13,810	14,892	15,750	14,769	17,168	19,469
Midwifery patients	2,483	2,504	2,637	2,611	2,522	2,769	2,924	2,924	2,860	2,692
Deaths from childbed	6	7	10	7	12	8	6	8	4	3

IV.—*Table showing the Growth of the Bed Accommodation in Metropolitan Hospitals associated with Medical Schools, during the present Century.*

	1801.	1843.	1891.
St. Bartholomew's Hospital................	441	510	650
St. Thomas's Hospital	420	494	600
Guy's Hospital	400	450	600
The London Hospital	250	330	776
St. George's "	160	320	351
Middlesex "	80	160	307
Westminster "	80	160	205
Charing Cross "	—	130	175
University College Hospital	—	130	207
King's College Hospital	—	120	218
Royal Free Hospital............................	—	80	160
St. Mary's "	—	—	281
	1,831	2,884	4,530

V.—*Table showing the Certified Number of Beds in each Poor Law Infirmary of the Metropolis, together with the Average Cost of each Bed continuously Occupied during the Year ended Lady Day,* 1888, *and the General Disbursements for Maintenance and Administration for the same Year.*

Number for which Certified.		Average Annual Cost per Occupied Bed.	Total Disbursements.
		£	£
331	Camberwell	30	9,793
386	Chelsea	34	12,974
486	Fulham	40	19,262
296	St. George's-in-the-East	36	10,634
776	St. George's	30	23,345
538	Greenwich	33	17,826
487	Hackney	35	16,954
625	Holborn	30	18,630
500	Islington, St. Mary's, doubtful	30	15,000
604	Kensington	35	21,170
622	Lambeth	32	19,689
645	City of London	29	18,592
744	Marylebone	38	28,619
469	Mile End Old Town	21	9,913
388	St. Olave's	35	13,611
523	St. Pancras	40	20,702
786	St. Saviour's	69	54,578
472	Shoreditch	35	16,479
618	Wandsworth, Clapham	31	19,107
213	Woolwich	34	7,168
264	Central Sick Asylum, Cleveland Street	40	10,497
586	Stepney and Poplar	40	23,286
284	Paddington	50	14,303
689	Whitechapel	30	20,403
12,332		—	442,535

Fractions of 1*l.* under 10*s.* have been disregarded in the above entries; 10*s.* or above have been entered as 1*l.*

VI.—Metropolitan Asylums Board. *Table showing the Average Number Maintained at the separate Hospitals, Annual Cost per Head, and Total Expenditure, exclusive of Rent and Special Works, for the Year ended at Lady-day,* 1891.

Hospital.	Average Number.	Total Expenditure.	Average Cost per Patient.
		£	£
Eastern	341	21,915 13 6	64 5 5
South Eastern	267	18,858 3 9	70 12 7
Western Hospital	176	12,706 19 4	72 4 –
South Western	178	14,476 6 8	81 6 7
North Western	276	15,244 9 8	55 4 8
Northern Convalescent	398	20,826 3 5	52 6 6
Hospital Ships	Barely 2	7,715 8 8	—
Gore Farm*	—	6,317 – 1	—
	—	118,060 5 1	—

* Open only a portion of the year, and very few patients admitted.

VII.—*Table showing the Increased Cost of Maintenance of Patients in London and Provincial Hospitals since the Year* 1868.

[*The figures give the Average Cost of each Bed permanently Occupied during the Years* 1868 *and* 1889 *respectively, and are arrived at by dividing the Ordinary Expenditure of each Institution by the Daily Average Number of Occupied Beds, and Deducting One Shilling for each Out-patient.*

The columns for 1868 *are from a Report on Hospital Expenditure, by J. S. Wilkinson, Secretary of St. Mary's Hospital, and published by Order of the Weekly Committee; those for* 1889 *are obtained from "Burdett's Hospital Annual" for* 1890.]

London General Hospitals.	1868.	1889.
	£	£
Charing Cross Hospital	60	92
Guy's Hospital	46	74*
King's College Hospital	59	102
London Hospital	59	63
Middlesex Hospital	62	85
St. Bartholomew's Hospital	58	89*
St. George's Hospital	57	78
St. Mary's "	58	76
University College Hospital	77	90
Westminster Hospital	40	64
Seamen's Hospital	56	57
London Special Hospitals.		
Cancer Hospital	124	104
Sick Children's Hospital	53	95
Brompton Consumption Hospital	54	114
Lock Male and Female	33	62
London Fever Hospital	38	125
Royal London Ophthalmic	44	58

Provincial Hospitals.	1868.	1889.
	£	£
Birmingham General Hospital	46	56
" Queen's "	43	53
Bradford Hospital	57	45
Brighton Sussex County	58	76
Cambridge, Addenbrooke's	45	51
Gloucester General Infirmary	44	60
Hull Royal Infirmary	35	49
Leeds Hospital	39	52
Leicester Hospital	32	49
Liverpool Royal Infirmary	35	55
Newcastle-on-Tyne Infirmary	31	49
Margate Seabathing "	39	57
Norwich Hospital	39	57
Winchester, Hants, County	49	50
Sheffield Infirmary	30	51
Staffordshire Infirmary	50	49
Edinburgh Royal Infirmary	36	51
Glasgow "	31	44

* The figures for Guy's and St. Bartholomew's are obtained from the returns furnished to the Charity Commissioners, and also from the memorandum of the Charity Organization Society respecting the medical charities of the metropolis.

VIII.—*Table of the Ages of Patients Discharged from Guy's Hospital during a period of Ten Years, arranged according to various Sub-sections of Disease.*

	Under 5 Years.	5—10.	10—15.	15—20.	20—25.	25—30.	30—40.	40—50.	50—60.	60—70.	70—80.	80 and Upwards.
Diseases of the nervous system	67	214	355	427	407	421	628	439	272	85	11	3
,, the respiratory organs	43	97	140	377	485	476	668	499	229	101	16	5
,, heart and blood vessels	72	30	103	231	184	166	228	199	124	51	7	—
,, digestive organs	84	87	84	199	290	363	555	452	295	113	15	2
,, genito-urinary organs	133	132	111	375	598	634	1,013	650	346	176	30	4
Syphilitic diseases	13	15	66	2,053	1,543	616	424	162	54	21	3	1
Dropsical affections	28	50	59	70	109	163	258	224	195	35	6	—
Diseases and injuries of bones	213	382	361	431	382	453	795	645	397	191	53	9
,, joints	170	328	374	735	719	568	716	487	262	94	18	1
External injuries to soft parts	224	211	240	279	266	289	352	277	124	71	15	—
Abscesses, ulcers, tumours	104	175	213	477	622	523	760	648	366	154	53	4
Ophthalmic affections	87	195	325	469	407	298	381	300	282	204	58	4
Diseases of the skin	86	59	89	185	184	146	196	180	114	47	12	1
Fevers	31	91	186	320	258	195	175	91	32	10	3	—
Miscellaneous	50	81	104	138	165	137	180	135	75	32	12	—

IX.—*Table of the Ages of Patients whose Complaints or Injuries Terminated Fatally during the same period of Ten Years, arranged in Sub-sections.*

	Under 5 Years.	5—10.	10—15.	15—20.	20—25.	25—30.	30—40.	40—50.	50—60.	60—70.	70—80.	80 and Upwards.
Diseases of the nervous system	14	14	23	27	20	47	56	49	24	8	4	—
,, the respiratory organs........	35	14	21	98	161	142	274	221	115	34	3	1
,, heart and blood vessels	4	9	26	34	43	40	100	96	84	24	3	1
,, digestive organs	17	9	14	39	53	65	116	105	107	60	12	4
,, genito-urinary organs	8	6	7	16	32	38	83	70	57	25	7	1
Syphilitic diseases	—	—	—	—	4	5	5	2	2	—	—	—
Dropsical affections	7	10	9	20	30	26	66	70	36	18	2	—
Diseases and injuries of bones	15	20	21	31	26	41	78	77	54	24	11	3
,, joints	1	6	12	21	18	20	21	11	12	6	2	1
External injuries to soft parts	130	46	20	17	8	14	24	19	5	13	4	4
Abscesses, ulcers, tumours	9	5	7	18	9	24	31	31	20	21	2	—
Ophthalmic affections	—	—	—	—	—	1	—	1	—	—	1	—
Diseases of the skin	3	1	—	3	4	3	10	9	7	4	2	—
Fevers	7	9	4	33	21	29	15	13	5	—	1	—
Miscellaneous	2	4	—	4	3	4	—	—	3	—	—	—

Discussion *on* Dr. Steele's Paper.

Sir J. Fayrer said the paper was one of great interest, and they were much indebted to the author for giving them the benefit of his suggestions and experience. He would not like to attempt to criticise a paper of such length and importance without a previous opportunity of studying it, nor would he like to advance any theory upon the subject of gratuitous relief. It seemed to him very hard indeed to interfere with that, although he knew it was open to abuse. He supposed it was also necessary to have special hospitals, but it was a great pity that so many large medical schools should be deprived of a number of most important cases necessary in the education of their students. Still there was much to be said on both sides. He did not feel at all competent to speak on the question of expenditure in London hospitals. It was singular that it should be so much greater in some hospitals than in others. He was, however, quite certain that if this had occurred in India, an inquiry would have been instituted. He was really a comparative stranger to London hospital administration, though it was a subject he took much interest in, and he therefore felt grateful to the Society for sending him an invitation to be present.

Mr. C. S. Loch said that on the general question of the relation of medical relief, considered from the point of view of charity, he and many others connected with the Charity Organisation Society, hoped that some conclusion might be adopted satisfactory both to those who were engaged in the hospitals, and to outsiders. He took it for granted that the hospitals, as Dr. Steele suggested, were to be managed on voluntary lines. If the hospitals received assistance from the municipality, the chances were that annual voluntary contributions would diminish year by year. Hospitals had hitherto been left free, and had, he believed, in consequence, improved much in the last fifty years. The question of which system was to be adopted—the voluntary or the municipal—had first to be settled, otherwise they could not determine what their principle of central organisation, a point to which Dr. Steele had referred at the close of his paper, was to be. Passing to several of the points suggested by Dr. Steele's paper, he would ask him whether or not, in his opinion, an occupation of 6,371, out of 8,886 beds, at 86 hospitals in London, represented a result which might be taken as normal, irrespective of the vacancy of beds due to want of funds. If the figures represented the former, the plea that an excessive number of beds were lying vacant owing to want of means fell to the ground. Next, in regard to subscribers' letters, it did not appear to him that it was possible to throw upon the subscriber the responsibility of guaranteeing to the hospital that each case admitted on a letter was suitable so far as the social circumstances of the patient were concerned. The letter should, it seemed to him, be taken simply as giving the patient the *entrée* to the hospital; but if it were accepted as providing this and no more, the further question remained, on what principle the out-patients should be selected. Dr. Steele had referred to the practice in force at Guy's, of exacting payment for drugs. In spite of this enactment, cases had increased. It was so generally in regard to all more or less artificial tests. People became accustomed to paying the small sum demanded, but the out-patient difficulty remained. Tests could not set aside the absolute need of discretion. The system of employing an inquiry officer had not been, it was stated, successful. This was natural. It could hardly be expected that inquiry conducted on the principle whether or not the patient should have a certain amount of monetary help in the form of medicine, or in the hospital, should succeed, from the point of view of charity. It was an attempt to decide a case of distress on one issue only, and chiefly in a negative spirit. What was wanted was the discretion which a person trained to deal with those in distress would have. A trained almoner was required in conjunction with medical relief. When necessary, there should be thoroughly good charitable relief of other kinds. If this were arranged by co-operation, inquiries would assume a new place in the charitable work of a hospital. A trained almoner, after the medical had selected those patients who were required for educational purposes, could deal satisfactorily with the remainder, sending them, as it might seem desirable, to the poor law, or to provident and other dispensaries, or leaving them to be dealt with by the local practitioners. Those that should be assisted on purely charitable grounds would be admitted at his or her recommendation. An almoner at the hospital would be in communication with those engaged in charitable work in the locality in which the applicant or patient resided. Just now people went from one hospital to another, and to hospital and dispensary, almost at haphazard. A link such as he suggested, between the hospital and the people in the locality in which the applicant was, would check this; and a system would grow up—the only reasonable system—of a proper treatment of the individual case.

To take another point in regard to the treatment of out-patients, he would have been glad if Dr. Steele had given them some idea of what the number of out-patients at Guy's actually was, apart from the number set down in the returns. This could probably be judged by an analysis of the distribution of the letters used in the several departments of the hospital. It ought to be possible to obtain a reasonable estimate. They could not now take the figures returned by hospitals as satisfactory, as no sufficient register was kept, and the most divergent practices seemed to be adopted at various hospitals as to counting renewals of letters as new cases, and on other points. The casualty department, to which reference had been made, sometimes seemed to be a kind of back door for out-patient treatment. Could not casualties and out-patients be brought into one sum and analysed, so that the outsider could judge exactly how many persons were dealt with. Reference had been made to general practitioners. Among the casualty cases were there not many which would naturally turn to the practitioners and pay them the ordinary fees? In regard to Edinburgh and Glasgow, to which Dr. Steele referred, was it not true that there too the out-patients were increasing? It seemed to him that the evil would grow, if people did not apply the criterion of systematic charity to medical relief, instead of treating it as a department apart, to which ordinary rules had no application.

In regard to the pay system, it seemed to him that it must always act hardly. If it was said that one shilling must be paid, one man might earn 40*s.*, and pay the shilling with ease, and another earning say, 12*s.* to 15*s.*, would find it a difficulty. The only way of preventing injustice in charity was to use a discretion in the individual cases based on sufficient knowledge. In old St. Thomas's Hospital out-patient letters, to refer to another point, it used to be stated that A. B. (the out-patient) had no friends to assist him. It was only by coupling medical charity to some general system of charitable work that there was any security that relations and friends would do their part.

In regard to provident dispensaries, it seemed to him extremely difficult to take the figures as a sign of satisfactory progress. He could not help thinking that unless the great friendly societies were prepared to take the matter up and work it out on a *bonâ fide* sick benefit system, there was fear lest a kind of hybrid charity, in part provident, in part supported by contributions, should be created, which would be shown to have ultimately but little actual vitality. Another point, Dr. Steele had referred to the plan of reckoning the cost of an out-patient at 1*s.* 6*d.* or 1*s.*, and had set it aside, adopting in preference a method of including in the cost of the bed the total of the out-patient expenditure. He could not help thinking that it ought to be possible, by a careful entry at the hospital for a time of the drugs used in the out-patient department, to get to know the actual cost of such drugs, and including other incidental charges, to be able to make a fairly accurate estimate of what the total cost of the out-patients was. At present the hospitals were in the dilemma of returning to the public as out-patients a large number of persons whose names were either not registered at all, or imperfectly registered, and of being unable to state what the cost of such out-patients was, though it was in regard to them that general practitioners based their complaint that they were unfairly dealt with in competition.

In regard to the rating of charities, he confessed he could not agree with Dr. Steele. The argument for including charities among rateable institutions seemed to him fair. Charity had all the advantages of the public service. If it paid no rates, it, by doing so, imposed upon each member of the community the payment of a kind of contribution to the hospital, as his rates had to go for the benefit of the hospital whether he would or not.

Lastly, in regard to the central board he could not agree to Dr. Steele's suggestion as to the Hospital Sunday and Saturday funds forming a suitable central body. A much broader and more influential body from the point of view of general administration ought, he thought, to be created for purposes of central supervision. All the chief interests concerned should be in some manner represented on the central board. Many of these points, however, could only be met after consultation with men like Dr. Steele and others, who for many years had been the responsible officers of large hospitals.

Mr. A. C. Scovell felt the fulness with which Dr. Steele had so ably treated his subject, and the great mass of details and facts which he had laid before them to be somewhat embarrassing. He would confine himself to one or two points. As one of the managers of the Metropolitan Asylums Board, and as a poor law man, it had been forced upon him to look upon the charitable aspects of medical relief both from an official point of view and also from the point of view of the sick poor. First of all, it was imperative that some means should be found to bring into touch the poor law medical system and the endowed hospital system. That they should be put under one central body which should provide rigid uniformity in all details was not to be advocated for a moment, but he thought there should be some method of producing uniformity in certain matters, and at the same time doing away with one of the most substantial grievances from which the sick poor suffered in the metropolis; and that was the way in which they have to go from one authority to another in search of medical relief. That was a matter of everyday observation in connection with the poor law. It occurred so often that he was almost at a loss to fix upon any special case by way of illustration. The ignorance of the poor as to what they should do when they wanted medical or surgical relief was very remarkable, but easily explained. When they were well they naturally did not study the organisation of the poor law or of other charities, and when they were unwell they went to the first person who could give them any advice; perhaps to the hospital, and then to the relieving officer, and finally, after much wandering, found themselves in the workhouse infirmary. A great deal, probably all, of this uncertainty might be avoided, and his experience of the Asylums Board showed him how much might be done in this direction. When first he became a manager, each of the infectious hospitals was to all intents and purposes a separate establishment, and it frequently happened that when disease or fever was rife one hospital was overcrowded, and patients were sent there only to be passed on to some other hospital in a distant district of London. The remedy was simple enough, but it was surprising the amount of effort there was to get over the red-tape of the poor law regulations, and the disinclination of the different committees to a central system. They got over it, however, at last, and now they had one central office in London at which they knew every morning what beds were vacant in each hospital, and every patient was taken to that in which there was room for him. It must be quite obvious, even to the common sense of any layman, that the exhaustion occasioned by the journeys of the sick poor from one place to another before they found relief must militate against their chances of recovery. That seemed to point to some central body that would be able to overcome local prejudice and put things on a better footing. The result would undoubtedly be great comfort to the sick poor. He was not at all sure that it would not tend very much to economy, because he thought one of the greatest taxes by which the community was burdened was the reduced health of the people arising from various causes, and one of those causes was unnecessary delay in getting medical relief. He believed he was quite within bounds when he said he knew hundreds of cases where it had been quite obvious that the sick poor had suffered simply on account of delay in access to good medical treatment. It was an immense deduction from the working strength of the poor, that they should waste their time so terribly before they obtained the medical relief to which he held they were in some form or other entitled. Coming to another point, why should the endowed hospitals maintain the patient as well as treat him medically? In the poor law the establishment charges were kept quite distinct from the maintenance of the patient. The cost of maintenance of each patient was ascertained and charged against the union that sent him in, and why should not something of the same sort be adopted in every hospital? Why should not the patient pay? or, if he could not, why should not the union from which he came? That appeared to him to be founded on justice. He might add that the poor law was treading very much upon the heels of the hospitals in the way of providing for patients. He was happy to say that in his own union they were at the present moment adding no less than 180 beds to their infirmary, and there were 388 beds there already. But, above all, he thought it essential that the general poor law medical relief and the general hospitals should be brought into touch in some way or other, and would suggest that some central authority should be organised to bring them into harmony at any point on which there was friction, and at the same time prevent them overlapping each other.

The PRESIDENT, before calling upon Dr. Steele for his reply, remarked that it was not necessary for him to take part in the present discussion, as his views on the question raised were placed on record nearly ten years since, and had been repeated on a recent occasion, and not one of the principles of organising the medical relief of the metropolis advocated by him had since been proved to be erroneous in any of the discussions that he was acquainted with; although they had not found general acceptance, he still adhered to them firmly.

A proper distinction had not been drawn between poverty and destitution, with the latter of which alone the poor laws had anything to do. All attempts to harmonise the action of the destitution authorities with those of voluntary aid in sickness were simply impracticable, as they are built on entirely different foundations. Hospitals moreover were strictly charities, and as such should be subject to the same regulations and inspection as all their congeners. No good reason had yet been shown why this should not be done. Again, it was not sufficiently regarded that London contained the population of an empire, and in all such matters as sickness, which are for the most part visitations of providence, could not be treated as if it were an overgrown parish, or an ordinary town; criticising unimportant points of internal administration, and advocating isolated action, would never settle the question, as they neither touched the main contention in its economical or social aspects, or disproved that the present system failed to fulfil its obligations from a scientific standpoint. Organisation in the widest meaning of the word was urgently required, and combined action alone would be adequate, under proper control, to secure the ends desired, the provision of prompt and effective aid in sickness for those who needed, and were unable to pay for it, and to appoint security that the funds collected for this purpose were not applied to any other use.

The President was of opinion that Dr. Steele's was an able and honest account of the *status quo*, which could not be said of much that was written and done in relation to hospital management; and although he pointed out some of the most salient defects of the existing system, and did not, except in one important particular, that of a central board of control, suggest efficient remedies for their removal, he was entitled to the cordial thanks of the Society for his valuable contribution to a matter of unquestioned interest and importance. The vote of thanks was given, and he then called upon Dr. Steele for his reply.

Dr. STEELE, in reply, said he was at a loss to know what to say, unless to apologise for giving the Society so long a paper, and to thank them for the kind reception it had met with. Of course he knew that the whole subject was bristling with debateable matter, and every point open to discussion. Mr. Loch asked him to throw some light on the fact of there being always a larger number of empty beds in the general hospitals as compared with the number of beds that were occupied in the infirmaries. That point had struck many people, especially as the general hospitals were continually sending patients away on the plea that there were no empty beds. This mainly arose from there being a large number of medical officers attached to each hospital, who had each his allotted number of beds, and these again were divided into medical, surgical, ophthalmic, and obstetric, and while one section was comparatively empty, another would be completely occupied; whereas in the infirmaries the patients were under the care of one medical officer, who would distribute them promiscuously, regardless of their several complaints, and in this way the wards would be kept pretty fully occupied. It very often happened too in the general hospitals that the wards had to undergo periodical repairs, painting and re-flooring, or that the drains required to be re-modelled, in which case it was usual to close a ward or two or even half of the hospital, and this fact would greatly reduce the average number. He was free to admit that the registration of out-patients was very imperfectly performed at most of the hospitals. As far as the casualties were concerned, he believed there was a tolerably accurate record kept of each case, but of the ordinary out-patients the letters and cards which the patients received on their first application were the chief means of identifying them. Some letters would be available for two weeks only, others for two months, while others might be given to patients without any limitation as to time. There ought to be a central board, which might be the means of reforming many of those matters; or if the hospitals could combine among themselves to do so, it would certainly be a great advantage to them in the future. Mr. Loch had also referred to differences in the cost of out and in-patients. This subject was frequently under discussion, especially with regard to the out-patients. As shown by the statistics of the Hospital Sunday Fund, one hospital would put down its cost of an out-patient at 6*d.*, while another would estimate it at 20*s.* They knew perfectly well that a hospital or dispensary which paid its medical men for their attendance on out-patients, would do so at a higher average cost per patient than one where there was no such payment made. They also knew that a cheaper class of remedies were more likely to be employed in outside dispensaries than at the hospitals, where all the newest and most expensive remedies were tested and employed. It was very difficult and almost impossible to discriminate between the amount of drugs used in the outgoing department from that used for the in-patients. The medical gentlemen and others employed to attend to out-patients had in most cases certain duties to perform in other parts of the hospital, and therefore he thought they ought to drop the idea of separating the average cost of in and out-patients and estimate the average cost per occupied bed of the in-patients only, disregarding the out-patients altogether. Every general hospital, in proportion to its size, had its fair modicum of out-patients: Guy's had its 40,000, and St. Bartholomew's and the London no doubt many more, as they were larger institutions. He was sorry to hear Mr. Loch approving of the taxation of hospitals. Did it not appear very unfair and unreasonable to tax hospitals, which were engaged in relieving the sick poor, in order that the sick poor should be relieved also in the sick asylums of the unions? He had been connected for many years with Guy's and with Scotch hospitals, where there were no such rates levied; and he understood that in some towns in England the municipal authorities had relieved the local hospitals from the burden of taxation. In London the rates are levied very unequally, some hospitals paying very little and others a great deal too much. Take the case of Charing Cross Hospital, which contains about the same number of beds, and stands upon something like the same area of ground as the Westminster Hospital: the former pays twice as much again as the Westminster, possibly from the vicinity of the latter to the Houses of Parliament. Then again the London Hospital, with its 800 beds, the largest subscription hospital in the kingdom, is assessed at the rate of 150*l.* a year, while Guy's, occupying about the same area, but with half the income, has to contribute 1,500*l.* a year to the local rates. It would no doubt be a great benefit if the hospitals could get a restitution of the exemption they formerly enjoyed.

RESULTS *of the* RECENT CENSUS *and* ESTIMATES *of* POPULATION *in the* LARGEST ENGLISH TOWNS.

By NOEL A. HUMPHREYS, ESQ.

[Read before the Royal Statistical Society, 16th June, 1891.
The President, DR. F. J. MOUAT, LL.D., in the Chair.]

IN anticipation of the Preliminary Census Report, which will be presented to parliament in the course of a few weeks, the Registrar-General has recently adopted in his weekly return the unrevised results of the English census in the twenty-eight large towns dealt with in that return. The local census returns, although subject to final revision and correction, were thus early published in order that they might be substituted for the unsatisfactory estimates of population used in recent years as a basis for the calculation of birth-rates and death-rates in these towns. These unrevised figures may be accepted as affording trustworthy evidence of the growth of our largest urban population during the past ten years.

These twenty-eight towns had, at the last census in 1881, a population of 8,437,214 persons, while on the 5th of April last the population enumerated therein was 9,379,711 persons, showing an increase of nearly a million, or, more precisely, of 942,497 persons. This increase was equal to 11·2 per cent. of the number enumerated in 1881, whereas the rate of increase during the preceding intercensal period, 1871-81, was 17·7 per cent. This marked decline in the rate of increase will hereafter be fully discussed. In the meantime it may be pointed out that while the increase was 10·4 per cent. in London, it was 11·7 in the aggregate of the twenty-seven large provincial towns. As might be expected, the rates of increase in the several towns showed very wide variations. Liverpool and Cardiff, both ports, showed the extremes of variation. The population in Liverpool actually declined from 552,508 in 1881, to 517,951 in 1891; the decrease in the ten years being no less than 34,557, and equal to 6·3 per cent. In Cardiff, on the other hand, the population increased from 82,761 in 1881 to 128,849 in 1891, the increase being 46,088, and equal to no less than 55·7 per cent. in the ten years. The rate of increase in the other towns ranged from 7·1, 7·1, and 7·3 per cent. in Birmingham, Bristol, and Brighton, to 18·1 in Oldham and in Birkenhead, 18·9 in Leeds, 20·7 in Hull, 24·4 in Portsmouth, and 28·2 in Newcastle-upon-

Tyne. The rate of increase in each of these towns is shown in Table I.

TABLE I.—*Area and Increase of Population in the Largest English Towns between the Censuses in* 1881 *and* 1891.

1 Towns.	2 Area in Acres.	3 Persons to an Acre, 1891.	4 Enumerated Population, 1881.	5 Enumerated Population, 1891 (Unrevised).	6 Increase of Population between 1881 and 1891.	7 Increase per Cent., 1881-91.
Twenty-eight towns	258,869	36·2	8,437,214	9,379,711	942,497	11·2
London'	74,692	56·4	3,815,544	4,211,056	395,512	10·4
Brighton	2,514	45·9	107,546	115,402	7,856	7·3
Portsmouth	4,320	36·9	127,989	159,255	31,266	24·4
Norwich	7,472	13·5	87,842	100,964	13,122	14·9
Plymouth	1,468	57·3	73,794	84,179	10,385	14·1
Bristol	3,595	61·7	206,874	221,665	14,791	7·1
Wolverhampton	3,396	24·3	75,766	82,620	6,854	9·0
Birmingham	8,400	51·1	400,774	429,171	28,397	7·1
Leicester	3,200	44·4	122,376	142,051	19,675	16·1
Nottingham	9,960	21·3	186,575	211,984	25,409	13·6
Derby	3,450	27·3	81,168	94,146	12,978	16·0
Birkenhead	3,849	25·8	84,006	99,184	15,178	18·1
Liverpool	5,210	99·4	552,508	517,951	−34,557	−6·3
Bolton	2,404	47·8	105,414	115,002	9,588	9·1
Manchester	12,788	39·5	462,303	505,343	43,040	9·3
Salford	5,170	38·3	176,235	198,136	21,901	12·4
Oldham	4,730	27·8	111,343	131,463	20,120	18·1
Blackburn	6,974	17·2	104,014	120,064	16,050	15·4
Preston	4,030	26·7	96,537	107,573	11,036	11·4
Huddersfield	11,788	8·1	86,502	95,422	8,920	10·3
Halifax	3,768	22·0	73,630	82,864	9,234	12·5
Bradford	10,775	20·1	194,495	216,361	21,866	11·2
Leeds	21,572	17·0	309,119	367,506	58,387	18·9
Sheffield	19,651	16·5	284,508	324,243	39,735	14·0
Hull	7,916	25·3	165,690	199,991	34,301	20·7
Sunderland	3,032	43·2	116,542	130,921	14,379	12·3
Newcastle	5,371	34·7	145,359	186,345	40,986	28·2
Cardiff	7,374	17·5	82,761	128,849	46,088	55·7

With the exception, perhaps, of the remarkable decline of population in Liverpool, the movement of population in these large English towns was not sensational, and affords no comparison with the remarkable statistics of the movement of urban populations published in a recent number of the United States Census Bulletin. From these statistics, it is interesting to note one or two among many almost startling instances of the growth of American cities during the ten years 1880-90. The population of Chicago is said to have increased from 503,185 to 1,099,850, equal to 118·6 per cent.; Minneapolis from 46,887 to 164,003, equal to 251·4 per cent.; Omaha from 30,518 to 140,452, equal to 360·2 per cent.;

St. Paul from 41,473 to 133,156, equal to 221·1 per cent.; Kansas City from 55,785 to 132,716, equal to 137·9; and Denver from 35,629 to 106,713, equal to 199·5 per cent. Before concluding this digressional reference to the American cities, it may be pointed out that, according to this American census return, the United States contained, at the date of the last census in 1890, thirty-two cities with a population exceeding 82,799 persons (the population of the smallest of the twenty-eight towns in the English list), with an aggregate population of 10,053,831. It also appears that the United States had twenty-eight cities with a population exceeding a hundred thousand, with an aggregate population of 9,697,958, exceeding by the third of a million the aggregate population of the twenty-eight largest English towns in April last. The population of New York, the largest American city, is little more than a third of that of London, but Chicago and Philadelphia are each credited with a population exceeding a million, and Brooklyn with more than 800,000, while, as has been stated, each of the twenty-four towns ranking next in size had a population exceeding 100,000. Thus the aggregate and average population of the twenty-eight largest American cities exceeds the aggregate and average of the twenty-eight English towns, unless the Preliminary Census Report should show that several English towns have, by phenomenal growth between 1881 and 1891, sprung into the foremost rank, and are therefore entitled by population to displace some of those which were included in the list as fixed at the last census. It is, however, very improbable that this has taken place to any considerable extent.

To return to the movement of population in the twenty-eight large English towns, the marked decline in the rate of increase in these towns calls for careful examination from two points of view. First, as to the evidence it affords of decreasing tendency to urban aggregation in this country, and, secondly, as to the effect of this decreased rate of increase upon the estimates of population which have recently served as the basis for calculating the birth-rates and death-rates in these towns. It is proposed in the first place to consider the decennial rates of increase in these twenty-eight towns during the ninety years that have elapsed since the first national census in 1801.

Taking the aggregate of the twenty-eight largest towns as typical of the growth of urban population in this country, it is noticeable that the increase per cent. of population in these towns was 19·4, 24·9, and 28·3 in the first three decennial periods, and after a decline of 23·0 in 1831-41, rose again to 24·3 in 1841-51; after which it declined in the two following periods to 19·9 and 17·2. After an exceptional recrudescence to 17·7 per cent. in

1871-81, the rate of increase dropped to 11·2 in 1881-91. The rates of increase in the twenty-seven provincial towns, excluding London, with scarcely an exception exceed the rates in London, but show generally the same incidence of rise and fall.

It appears that the rate of increase in the aggregate of the twenty-eight towns ranged in the first five census periods between 19·4 and 28·3 per cent., whereas it has been below 20 per cent. in each of the last four decennia, falling with scarcely a break from 19·9 to 11·2. These figures conclusively suggest a real decline in the rate of urban aggregation. It is impossible, however, to arrive at an entirely satisfactory conclusion on this point until the results of the census for the whole of England and Wales are published. It might be that urban aggregation has, in the recent census period, affected the smaller towns to a greater extent than the largest towns, or, on the other hand, it might be that the growth of some of the largest towns has recently taken place outside their arbitrary boundaries fixed for local government. At present it is only possible to test the growth of the large town suburbs as regards London, the necessary facts for which have already been published, and will now be considered.

The Movement of Population in London.

The question whether the devouring and absorbing growth of the population of London has been maintained during the recently concluded intercensal period, is one of the most interesting problems which the results of the recent census may be expected to solve. The question of boundaries affects this problem even in a greater degree than it does the growth of other large towns. Who can authoritatively decide precisely where, on its outer fringe, London begins or ends? There is a centrifugal force, of increasing strength, at work in every large town, which is constantly driving out the population from its centre to its periphery, and this centrifugal force is a factor which intensifies the result of the magnetic influence of urban aggregation upon the growth of its outer or suburban ring. It is the joint operation of these two forces which is constantly causing the population of towns to overflow the arbitrary boundaries fixed in past years for the purposes of local government, and in scarcely any town have these two forces more powerfully affected the movement of the population than in London.

The arbitrary boundaries of registration London, which are (with unimportant exceptions) coextensive with the district of the late Metropolitan Board of Works, now the County of London, have remained practically unchanged since 1847, when Hampstead was added, Wandsworth (including Battersea) having been previously added in 1844. It is, however, now nearly twenty years ago since the late Dr. Farr came to the conclusion that through aggregation and overflow the arbitrary boundaries of registration London no longer represented what was really London, and therefore began to publish in the weekly return statistics for greater London, represented by the area of the metropolitan and city police districts. The growth of population in the outer ring of this greater London naturally very largely exceeds that which prevails within the boundaries of registration London (practically the County of London), the area of unoccupied building land therein being reduced within comparatively small limits.

The consideration of the recent movement of population within inner or registration London claims, however, first attention. At the first national census in 1801, the population of this area was less than a million, 958,863. In the forty years 1801-41 the population of this area rather more than doubled itself, and became 1,948,417, the increase being equal to 103 per cent.; while in the next forty years 1841-81 the 1,948,417 very nearly again doubled itself, and became 3,816,483, the increase being equal to 96 per cent. More closely examined, it appears that the rate of increase in London was 18·8 per cent. during the first intercensal period 1801-11, and rose to 21·1 and 20·0 in the two succeeding decennia; in the four following census periods the rate of increase was successively 17·7, 21·2, 18.7, and 16·1. During the ten years 1871-81 the rate of increase rose again to 17·3 per cent., only however to fall still more decidedly to 10·4 in the ten years ending in April last.

Examination of the census figures for the various districts of London shows that the two factors of centrifugal dispersion and of peripheral increase, previously referred to, had influenced the movement of population in London with increased force during the last decennium.

The report on the census in 1881 called attention to the "compact area" in the centre of London,[1] within which, owing mainly to the substitution of business premises for dwelling houses, the resident population had for a considerable period been steadily declining. It was pointed out that the inhabitants of this central area had declined 5·8 per cent. in the ten years 1861-71, and 7·8 per cent. in the following decennium 1871-81. During the recently completed decennium the rate of this decrease increased to 9·2 per cent. It should be noticed, however, that the district of Whitechapel showed an increase of 3,099 persons in the ten years ending last April, whereas in the two preceding decennia the population had decreased 3·0 and 6·8 per cent. respectively; on the other hand the populations of the districts of Pancras and Stepney, which had hitherto shown an increase (although at a decreasing rate) in each census period, declined for the first time in the ten years 1881-91. The rate of increase of population in Pancras, which had been 11·4 per cent. in 1861-71, and 6·7 in 1871-81, changed to a decrease of 0·9 per cent. in 1881-91; and similarly the increase of 2·0 and 1·5 per cent. in Stepney, changed to a decrease of 1·5 per cent.

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[1] Consisting of the following ten registration districts:—St. George's Hanover Square, Westminster, Marylebone, St. Giles, Strand, Holborn, London City, Shoreditch, Whitechapel, and St. George-in-the-East.

Outside this central area, with an actually declining population, is a circle of registration districts constituting the remaining portion of registration or inner London, which have continued to increase, although at a decreasing rate. Excluding the ten registration districts constituting the central area of the Census Report for 1881, the remainder of inner London showed an increase of 28·4 per cent. in 1861-71, and of 27·7 per cent. in 1871-81, whereas this rate of increase fell to 15·8 per cent. in 1881-91. Notwithstanding this marked decline in the rate of increase in this portion of inner London, the rate during the last intercensal period continued very high in many of the districts. In Fulham, for instance (including the sanitary areas of Hammersmith and Fulham), the rate of increase was 75 per cent., against 65 in 1861-71, and 74 in 1871-81; in Hampstead the increase, which had been 69 and 41 per cent. in the two preceding decennia, rose again to 51 per cent.; in Wandsworth (including Battersea) the percentage of increase was 46, against 78 in 1861-71, and 68 in 1871-81; and in Lewisham (including Lee, Charlton, and Plumstead) the percentage was 38, against 61 and 42 in the two preceding decennia. On the other hand, the recent rates of increase in Kensington, Chelsea, Islington, Hackney, Poplar, and Lambeth have fallen to specially small figures in comparison with rates that prevailed in preceding decennia.

There is very little reason to doubt that this marked decline in the rate of increase of population within the boundaries of registration London will continue at an increasing rate. The question, however, still remains for consideration whether the rate of increase of greater London is also declining, or whether the slower increase in registration London is being compensated by a faster increase in the outer ring of suburban districts. The Census Report for 1881 showed that the rate of increase of population in that portion of the metropolitan police district lying outside registration or inner London was 50·8 per cent. in 1861-71, and 50·5 in 1871-81. During the ten years ending in April last the rate of increase in these suburban districts further declined slightly to 49·5 per cent. If greater London be considered as a whole, the rate of increase, which was 20·6 per cent. in 1861-71, and 22·7 per cent. in 1871-81, fell to 18·2 in the ten years ending April last. It is evident, therefore, that during the past ten years there has been a marked check to the rapid rate of growth within this large area. As greater London includes every parish of which any part is situated within twelve miles of Charing Cross, this area undoubtedly includes the whole of what can fairly be called London, although even outside its boundaries reside no inconsiderable number of those who regularly form part of the day population of the metropolis. It seems improbable, although it is obviously not impossible, that the rate of increase of the greater London population should again rise to that which formerly prevailed; and it may safely be pronounced to be simply impossible that the population of the area now known as the County of London, which doubled itself in the forty years 1801-41, and again in the following forty years, 1841-81, can again double itself in the forty years of which the first ten ended in April last.

Before closing this examination of the recent movement of the population of the metropolis, it will be interesting to note briefly the localities in the outer ring which showed the largest proportion of increase during the ten years 1881-91. In the Surrey portion, the increase exceeded 25 per cent. in Croydon sub-district, and was more than 50 per cent. in Wimbledon sub-district. In Bromley (Kent) the increase was nearly 50 per cent. In the north-west suburbs Willesden showed a very remarkable increase, as the population of this sub-district increased from 27,453 in 1881, to 61,266 in 1891, equal to 122 per cent.; and in Finchley sub-district the increase was nearly 50 per cent. In the more directly northern suburbs, the population of Tottenham sub-district more than doubled itself, having increased from 46,456 to 97,166; and the population of the four sub-districts of Hornsey, Tottenham, Edmonton, and Enfield, rose from 126,101 in 1881, to 226,719 in 1891, the increase being equal to 80 per cent. Lastly, in Essex sensational increase was recorded in Stratford, West Ham, East Ham, Leyton, and Walthamstow sub-districts. In the registration district of West Ham, including all the before mentioned sub-districts, the population rose from 200,958 to 365,130, the increase exceeding 80 per cent. These very high rates of increase, coupled with the fact that the mean rate for the whole of the outer ring did not exceed 49·5 per cent., shows that very moderate rates of increase prevailed in a large proportion of the other suburban districts.

Movement of the Population in the Largest Provincial Towns.

It has been shown that the rate of increase of the aggregate population within the present boundaries of the twenty-seven large provincial towns dealt with in the Registrar-General's weekly return, has constantly, although far from steadily, declined from 37·7 per cent. in the ten years 1831-41, to 11·5 per cent. in the intercensal period just closed. When the figures for the individual towns are examined, very noticeable variations are found. It would be impossible within the limits of this paper to examine in detail the growth of population in each of these twenty-seven towns. Detailed examination will therefore be confined to the largest towns, and to one or two of the others presenting special features of interest.

In Liverpool, which is still the largest city after London, the rate of increase has declined (with scarcely a break), from an increase of 31·2 per cent. in 1841-51, to a *decrease* of 6·3 in 1881-91. With regard to Liverpool it should be pointed out that the area of this city is relatively small, and that the density of population, measured by the number of persons per acre (99·4), is considerably greater than in any other of these large towns; it is therefore possible that a considerable proportion of the recent growth of this city has occurred outside its municipal boundaries. It is not however possible to ascertain to what extent this is the case until the Preliminary Census Report is issued, which will show the results of the census in the whole country, including the areas immediately outside the boundaries of the largest towns.

In old Manchester the increase was 28·8 per cent. in 1841-51, and fell successively to 11·6 and 3·7 per cent. in the two following census periods; in the following ten years, 1871-81, the population showed an actual decline of 2·8 per cent. During the last ten years, however, the area of the city has twice been very considerably enlarged, and the population within the present area of the city increased 9·3 per cent. in this intercensal period. It is obvious that should Liverpool continue to decline, and Manchester to increase, at the same rates that prevailed during the last ten years, Manchester will very soon displace Liverpool as the second largest English city. On the other hand, if the boundaries of Liverpool were considerably extended, it is exceedingly probable that the population of the enlarged area would show a rate of increase, a similar change having resulted from the large extension of Manchester.

In Birmingham the increase of population was very marked during the forty years ending with 1861, the percentage being 42 in 1821-31, and 27 in 1831-41, in 1841-51 and in 1851-61; after a fall to 16·1 and 16·6 per cent. in the two following census periods, the increase further fell to 7·1 per cent. in 1881-91. The increase in this town therefore reached its maximum in 1821-31, and has since almost constantly declined. In Birmingham, as in

Liverpool, wholesale demolition of dwelling houses, and the erection of business premises in their place, have caused marked decline of residential population in the central parts of the town, and it remains to be seen to what extent this displacement may have affected the suburbs of the town lying outside the municipal boundaries.

The population of LEEDS nearly trebled itself in the forty years, 1801-41, and again doubled itself in the next forty years 1841-81. During the last forty years the increase per cent. rose successively from 13·3 to 20·3 and 25·1 in the three decennial periods ending 1861, and then declined to 19·3 in 1871-81, and to 18·9 in the last intercensal period. Thus the rate of increase has been far better maintained in Leeds than in most of the other towns. This is probably due to the fact that the borough of Leeds has a very large area, and that therefore most of the suburban increase still occurs within its boundaries. The density of its population is now only 17 per acre.

SHEFFIELD occupies, as it did in 1881, the sixth place among these large towns, ranged in order from the highest. The population of this town did not much more than double itself in the first four intercensal periods, 1801-41, during which it rose from 45,755 to 111,091. After 1841 the rate of increase was much higher, and was 21·8 per cent. in 1841-51, and 36·8 in 1851-61; from this maximum of increase the rate has since constantly declined to 29·6 in 1861-71, 18·6 in 1871-81, and further to 14·0 per cent. in 1881-91. As the area of Sheffield is almost as large as that of Leeds, with a density of little more than 16 persons to an acre, it would appear that most of the real increase of the town occurs within its municipal boundaries. This may account for the increase of this town in the last ten years being above the mean rate in the twenty-eight towns.

In BRISTOL the population rather more than doubled itself in the forty years 1801-41, but did not again double itself in the next forty years 1841-81; the increase was 105 per cent. in the first, and 66 in the second of these two periods. The rate of increase per cent. increased successively from 9·7 in 1841-51 to 12·2 in 1851-61, and 18·6 in 1861-71; since which it has declined again to 13·2 in 1871-81, and 7·1 in 1881-91. The area of the city of Bristol is only 3,595 acres, and the present population averages 61·7 per acre, which is only exceeded among 28 towns by the density of Liverpool. It follows, therefore, that a considerable proportion of the real increase of Bristol may recently have occurred outside the arbitrary boundaries of the city.

The growth of BRADFORD has been remarkable for its rapidity. The population of this borough increased nearly fivefold in the forty years 1801-41, and again more than doubled itself in the next forty years 1841-81. During this last period, however, the intercensal rates of increase showed extreme fluctuations. In the ten years 1841-51 the increase was 51·4 per cent., while it fell in the next ten years to 2·6 per cent.; it rose again to 36·3 per cent. in 1861-71, and afterwards fell successively to 24·6 in 1871-81, and to 11·2 per cent. in 1881-91. The area of this town is more than 10,000 acres, and its density only 20 persons per acre. There must therefore be plenty of space for extension within the borough area, and it appears improbable that much of the recent real increase of the town can have occurred outside its boundaries.

NOTTINGHAM is another town of rapid but remarkably fluctuating increase. The population of this town more than doubled itself between 1801 and 1841, and again considerably more than doubled itself in the next forty years 1841-81. The increase per cent. was 13·4 in 1841-51, and rose to 23·4 in 1851-61, declined again to 13·7 in 1861-71, rose again to 34·3 in 1871-81, and in the last intercensal period declined again to 13·6. Will it rise again in the census period just begun? Who but a prophet endowed with exceptional powers of divination would venture to estimate the population of this town ten years hence, or the rate of increase meanwhile? The area of the present borough is just under 10,000 acres, and the density of population does not exceed 21 per acre.

The population of SALFORD increased very nearly fourfold in the forty years 1801-41, and again increased nearly threefold in the forty years 1841-81. The rates of increase during the three census periods between 1841 and 1871 were comparatively equable, being successively 24·5, 20·4, and 21·8. In the next ten years, 1871-81, the rate however suddenly rose to 41·2, and then fell in the most recent period, 1881-91, to 12·4 per cent. The area of this borough is rather more than 5,000 acres, and the density of population 38·3 per acre, almost identical with the proportional density in Manchester.

NEWCASTLE-ON-TYNE showed during the ten years ending in April last a larger rate of increase than any of the other large towns, Cardiff alone excepted. The increase of population in this town did not much more than double itself in the forty years 1801-41, and it again doubled itself in the next forty years 1841-81. During the latter of these two periods the increase per cent. declined successively from 24·8 to 24·3, 17·7 and 13·2. The increase in the last ten years, 1881-91, rose however to 28·2. Newcastle-on-Tyne is the only town in this list in which the rate of increase in the last ten years exceeds the rate that prevailed in any previous intercensal period. This is the more remarkable since the area of the borough does not exceed 5.371 acres. The density of population in the borough is 34·7 persons per acre.

The population of HULL considerably more than doubled itself in the forty years 1801-41, and again considerably more than doubled itself in the next forty years 1841-81. In the latter of these two periods the rate of increase was 25·4 in 1841-51, 15·0 in 1851-61, and 25·5 in 1861-71, and the highest rate in the forty years was 31·2 per cent., in 1871-81. During the last intercensal period the rate of increase declined to 20·7, and was considerably below the rate that prevailed in either of the two preceding decennial periods. The area of the borough is a little under 8,000 acres, and the density of population does not exceed 25·3 per acre.

Having thus considered the varying rates of increase during the last ninety years in each of the twelve largest towns, it would answer no useful purpose, even if time and space would allow it, to deal separately with each of the sixteen other towns. It must therefore suffice to refer briefly to a few of the towns the growth of which presents special features. In Portsmouth the decennial rate steadily declined from 35·9 in 1841-51, to 12·7 in 1871-81, and rose again in the recent decennium to 24·4 per cent. In Leicester the rate of increase in the last three intercensal periods has been 39·9, 28·4, and 16·1 per cent. respectively. In Oldham the percentage of increase declined from 34·7 in 1871-81, to 18·1 in 1881-91. The growth of Cardiff in recent years has far exceeded that which has occurred in any of the other large towns; the five decennial rates of increase in this town during the last fifty years have ranged from 104·5 per cent. in 1851-61, to 38·5 in 1861-71. The rate of increase in Cardiff during the last intercensal period was no less than 55·7 per cent., and was nearly five times as great as the mean rate in the twenty-seven provincial towns. The recent increase in Brighton has very markedly declined throughout the last fifty years, and fell in the ten years 1881-91 to 7·3 per cent. The recent decline of the rate of increase was also very marked in Bolton, Blackburn, Derby, and Huddersfield. In Preston the rate of increase was a trifle greater than the very low rates in the two preceding census periods; and in Norwich and Plymouth the rate of increase in 1881-91 was very considerably greater than in the preceding ten years. Notwithstanding these exceptions, the most noticeable feature in the census returns for these large towns remains—the remarkable falling off of their growth compared with the rates of increase in previous intercensal periods.

Estimates of Population in Intercensal Periods.

It is now necessary to consider what has been the result of the recent remarkable decline in the growth of our large towns upon the estimates of population which have recently been used for the calculation of their birth-rates and death-rates. It is well known that these estimates were based upon the usual hypothesis that the rate of increase prevailing between the last two censuses had been maintained since 1881. The facts and figures which have just been discussed, and the successive rates of increase in the several towns shown in Table II, accentuate the fact of the strong improbability of any town showing the same or even very similar rates of increase in two successive intercensal periods. This method has never before yielded such untrustworthy results as in the ten years just ended, simply because the change in the rates of increase has never been so general or so exceptionally great. The error in the hypothetical estimate of the population in the aggregate of the twenty-eight towns amounted to an over-estimate of 605.318 persons, showing a percentage of error equal to 6·4 per cent. The percentage of error in London was 6·4, the actual over-estimate being 271,255, or more than a quarter of a million.

TABLE II.—*Rates of Increase or Decrease per Cent. during each Intercensal Period since the first National Census in* 1801, *in each of the Twenty-eight Large Towns dealt with in the Registrar-General's Weekly Return.*

Towns.	Increase or Decrease per Cent. in each Intercensal Period.								
	1801-11.	1811-21.	1821-31.	1831-41.	1841-51.	1851-61.	1861-71.	1871-81.	1881-91.
Twenty-eight towns	19·4	24·9	28·3	23·0	24·3	19·9	17·2	17·7	11·2
London	18·8	21·1	20·0	17·7	21·2	18·7	16·1	17·3	10·4
Brighton	64·5	99·0	65·1	16·0	40·2	18·4	17·5	16·3	7·3
Portsmouth	25·2	12·4	7·8	5·2	35·9	31·5	19·8	12·7	24·4
Norwich	− 1·6	38·7	21·5	2·0	10·2	9·0	7·3	9·3	14·9
Plymouth	29·7	3·8	43·9	17·5	43·0	19·9	9·8	7·3	14·1
Bristol	16·9	19·1	22·7	19·9	9·7	12·2	18·6	13·2	7·1
Wolverhampton	18·1	23·9	34·6	47·1	37·4	21·8	12·2	10·9	9·0
Birmingham	17·1	22·9	41·5	27·0	27·3	27·2	16·1	16·6	7·1
Leicester	37·9	32·3	30·9	25·0	19·2	12·3	39·9	28·4	16·1
Nottingham	23·2	19·2	42·5	14·5	13·4	23·4	13·7	34·3	13·6
Derby	19·7	33·2	36·6	38·9	25·7	17·2	26·8	26·5	16·0
Birkenhead	20·9	59·7	203·7	176·4	185·7	50·7	27·7	27·3	18·1
Liverpool	26·5	32·9	45·8	42·0	31·2	18·1	11·1	12·0	− 6·3
Bolton	37·1	28·7	31·8	20·0	19·8	17·1	20·6	14·3	9·1
Manchester	18·1	40·3	44·1	30·3	30·8	16·3	9·0	8·7	9·3
Salford	37·5	31·3	55·8	33·7	24·5	20·4	21·8	41·2	12·4
Oldham	38·8	29·8	49·5	31·5	24·0	36·9	14·2	34·7	18·1
Blackburn	24·4	43·7	21·8	31·8	26·5	36·2	20·4	21·5	15·4
Preston	40·5	36·4	41·0	49·3	36·2	19·3	4·1	10·6	11·4
Huddersfield	27·2	32·0	35·5	28·7	20·5	13·0	15·5	16·4	10·3
Halifax	7·0	31·6	29·8	28·2	21·1	8·2	26·1	12·4	12·5
Bradford	20·2	55·6	57·3	49·2	51·4	2·6	36·3	24·6	11·2
Leeds	17·6	34·0	47·3	23·2	13·3	20·3	25·1	19·3	18·9
Sheffield	16·3	22·6	40·5	21·2	21·8	36·8	29·6	18·6	14·0
Hull	25·2	19·7	16·3	28·9	25·4	15·0	25·5	31·2	20·7
Sunderland	3·0	22·7	27·6	30·4	25·8	26·3	20·2	18·6	12·3
Newcastle	− 1·4	28·3	28·3	31·2	24·8	24·3	17·7	13·2	28·2
Cardiff	22·9	36·6	59·1	51·7	77·0	104·5	38·5	44·3	55·7

Note.—These percentages represent the increase or decrease of population within the *present* boundaries of the several towns.

The hypothetical estimate was, on the other hand, almost accurate in Manchester, the error being an under-estimate of only 144 in more than half a million. The percentage of error was less than 1 per cent. in Halifax and in Leeds, and was only 1·5 and 1·8 per cent. respectively in Bolton and Wolverhampton; it ranged upwards in the twenty-two other towns to 14·5 in Oldham, 18·6 per cent. in Nottingham, 20·0 in Liverpool, and 26·3 in Salford. Stated in another way, the population estimated by the hypothetical method was over-stated by 19,148 in Oldham, 39,555 in Nottingham, by no less than 103,327 in Liverpool, and by 52.307 in Salford. These exceedingly large errors of estimate arose in these four towns from the fact that the rate of increase declined in Oldham from 34·7 per cent. in 1871-81 to 18·1 in 1881-91; in Nottingham from 34·3 to 13·6; in Liverpool from 12·0 to a *decrease* of 6·3 per cent.; and in Salford from 41·2 to 12·4 per cent.

Table III.—*Estimated Population of the Largest English Towns in the middle of the Year* 1891.

1 Towns.	2 Estimated from the Rate of Increase in the Intercensal Period 1871-81.	3 Estimated from the Numbers Enumerated in April, 1891.	4 Error of Excess or Defect in Hypothetical Estimate in Col. 2.	5 Percentage of Error in the Hypothetical Estimate.
Twenty-eight towns	10,010,426	9,405,108	+ 605,318	+ 6·4
London	4,492,707	4,221,452	+ 271,255	+ 6·4
Brighton	125,539	115,606	+ 9,933	+ 8·6
Portsmouth	144,671	160,128	− 15,457	− 9·7
Norwich	96,202	101,316	− 5,114	− 5·0
Plymouth	79,339	84,464	− 5,125	− 6·1
Bristol	235,171	222,049	+ 13,122	+ 5·9
Wolverhampton	84,277	82,799	+ 1,478	+ 1·8
Birmingham	469,003	429,906	+ 39,097	+ 9·1
Leicester	158,266	142,581	+ 15,685	+ 11·0
Nottingham	252,217	212,662	+ 39,555	+ 18·6
Derby	103,269	94,496	+ 8,773	+ 9·3
Birkenhead	107,619	99,597	+ 8,022	+ 8·1
Liverpool	620,443	517,116	+ 103,327	+ 20·0
Bolton	117,034	115,253	+ 1,781	+ 1·5
Manchester	506,325	506,469	− 144	− 0·03
Salford	251,024	198,717	+ 52,307	+ 26·3
Oldham	151,158	132,010	+ 19,148	+ 14·5
Blackburn	125,874	120,496	+ 5,378	+ 4·5
Preston	106,141	107,864	− 1,723	− 1·6
Huddersfield	101,080	95,656	+ 5,424	+ 5·7
Halifax	82,998	83,109	− 111	− 0·1
Bradford	246,101	216,938	+ 29,163	+ 13·4
Leeds	370,261	369,099	+ 1,162	+ 0·3
Sheffield	338,543	325,304	+ 13,239	+ 4·1
Hull	219,812	200,934	+ 18,878	+ 9·4
Sunderland	138,859	131,302	+ 7,557	+ 5·8
Newcastle	165,016	187,502	− 22,486	− 12·0
Cardiff	121,477	130,283	− 8,806	− 6·8

The actual effect of these erroneous estimates upon the calculated birth-rates and death-rates will presently be discussed; there is, however, one aspect of the unfortunate influence of decennial censuses upon the estimate of annual populations which scarcely receives the attention it deserves: the evil arising from these ten year intercensal periods is not confined to the current decennium. When a census is taken, the population of the ten preceding years is recalculated on the assumption that the rate of movement has been equal throughout that period. No other available method would probably give better results, but it is obviously an unsatisfactory one. In cases of marked variation between the rates of movement in two successive decennia it is impossible to determine at what precise date in the twenty years the change began. We have seen that Liverpool increased 12 per cent. in the period 1871 to 1881, and decreased 6 per cent. between 1881 and 1891. It is obvious that this change from increase to decrease may have commenced a few years before or a few years after 1881, and it is most improbable that the change took place on the census day 1881, which the usual method necessarily assumes. Almost equal difficulties are presented in a case like Bradford, where in three successive census periods the rate of increase was 51·4, 2·6, and 36·3. The irregularities caused in the population series may be easily graduated and smoothed away, but there is absolutely no means to ascertain really when the turn of the rates took place, and therefore grave difficulty lies in the way of estimating, with any approach to accuracy, the population in individual years between decennial censuses. This difficulty would at any rate be greatly reduced by a quinquennial census.

The most important consideration with reference to these defective estimates, however, is whether the facts suggest any means for providing less defective estimates in future. The foregoing inquiry almost inevitably suggests the conclusion that the rate of increase in one decennium affords scarcely an indication of what the movement will be in the next. In Liverpool, as we have seen, the rate of increase was higher in 1871-81 than it had been in the ten preceding years, and yet in 1881 this increasing increase changed to a decrease of 6·3 per cent., causing by the usual method an over-estimate of more than 100,000 persons. The probabilities are in favour of a continuance of this decline in Liverpool, but it would require the gift of prophecy to speak authoritatively on such a point; and if no census is taken again till 1901, and if the decrease in this town should change again to an increase, a similarly large error of estimate in this town would recur. As regards Nottingham, high and low rates of increase have regularly alternated during the last five intercensal periods;

but who would venture to decide as to the probability of a low or of a high rate of increase during the decennium that has just begun? So with Salford, the history of past movement of population in this town appears to afford no means for estimating what the rate of movement even in the near future will be.

Even in the whole of England and Wales the rate of increase, which had constantly declined during the fifty years 1811-61, and which then turned to an increasing rate during the twenty years 1861-81, appears to have again changed to a decreasing rate of increase during the decennium just ended. These facts, however, appear to supply no real assistance in determining what the rate of increase in the current decennium will be. The uncertainty in smaller areas, and especially in towns, is, moreover, far greater than in England and Wales.

It is evident that little help is to be expected from local sanitary authorities in rectifying erroneous estimates of the population of their districts. It is true that the authorities of Newcastle and Cardiff have for some time asserted that their population was under estimated, and their assertions have proved well founded; but similar assertions relating to other towns have proved unfounded. Moreover, it is a fact that efforts are seldom made by sanitary authorities to correct over-estimates of population, which thus under-state death-rates. It appears like the irony of fate, that the annual report on the sanitary condition of Liverpool in 1890 was issued on the very day that the Registrar-General published the new estimates of the population of the large towns, showing an over-estimate of more than 100,000 in this city. In this report the medical officer of health writes, "the estimated "population for the year was 613,463, and is *probably slightly in* "*excess of the actual number*." This local opinion, in the face of an excess of more than 100,000 in the population of Liverpool, precludes the hope of much assistance from local sanitary authorities.

It should be stated however that in Salford the medical officers (Dr. Tatham and more recently Mr. Paget) recognised that the official method over-stated the population of the borough, and adopted a considerably lower estimate; even this, however, turns out to be more than 20,000 in excess of the enumerated population.

It is impossible now to attempt to discuss fully the problem of estimating population in intercensal years. It may however be well to refer to one or two of the possible methods suggested for the purpose. In the whole of England and Wales, with the improved and still improving statistics of emigration and immigration, there should be little difficulty in making the necessary correction in the natural increase, or excess of births over deaths, and in thus estimating pretty closely the population of the whole country. In the territorial sub-divisions of the country however, migration, of which no record appears possible, plays so important a part that the record of natural increase is practically useless for the object in view. In registration London the natural increase in the ten years 1881-90 was 510,938, while the increase of population in the intercensal period 1881-91 was only 395,512; it follows therefore that 115,426 must have overflowed its boundaries, probably to a great extent into the outer ring; whereas in the preceding ten years the enumerated increase of population exceeded the excess of births over deaths by 108,152. In the outer ring, on the other hand, only 194,263 of the enumerated increase was due to natural increase, leaving 277,056 as the result of aggregation. If greater London be taken as a whole, the enumerated increase was 866,671, of which 705,201 was accounted for by natural increase, while 161,470 appears to have been due to aggregation. As the record of natural increase in the outer ring is not complete for the whole of the preceding decennial period 1871-80, it is not possible to state how much of the increase in that ten years was due to aggregation, but it may be safely asserted that the migration into London very considerably declined during the ten years just ended.

We have just seen that of the growth of greater London during the ten years 1881-91, 19 per cent. was due to aggregation. It will therefore be interesting to calculate, for the sake of comparison, the relation of natural increase to the enumerated increase of population in a few of the other large English towns. It is obvious that these facts are only available for those towns which have been included in the Registrar-General's list for the whole intercensal period, and for which the boundaries have remained unchanged during that period. The result is somewhat remarkable; and corroborates the suggestion that the aggregation to towns is declining, and that in the case of many towns much of their real increase is now taking place outside their recognised boundaries. In only eighteen of the twenty-eight large towns has it been possible to obtain this information, and in the aggregate of these eighteen towns the excess of births over deaths exceeded the enumerated increase of population by more than 200,000, which represents the overflow of population beyond the fixed boundaries of these towns, due to the balance of migration. In London, Liverpool, Birmingham, Bristol, Salford, Nottingham, Sheffield, Sunderland, Wolverhampton, Brighton, and Leicester, the natural increase (or excess of births over deaths) within the ten years exceeded the enumerated increase. In the case of Liverpool the excess of births over deaths was 51,635, and yet the decrease of population in the ten years was 34,557; it follows that a population of 86,192 persons overflowed its boundaries during the period 1881-91. It would be interesting to know how many of this migratory population really left the town, and how many merely settled in the surrounding districts. The loss by overflow in this manner was 29,526 in Birmingham, 11,720 in Bristol, 5,187 in Nottingham, 3,503 in Salford, 3,323 in Wolverhampton, and 5,576 in Sunderland. In Leeds, Newcastle-on-Tyne, Oldham, Portsmouth, Norwich, Plymouth, and Birkenhead, on the other hand, the enumerated increase of population considerably exceeded the excess of births over deaths. The increase of these towns due to aggregation was 17,375 in Leeds, 18,688 in Newcastle-upon-Tyne, 11,258 in Oldham, and 10,610 in Portsmouth. There can be no question about the real increase of these seven last mentioned towns. It is evident however that in those towns in which a large proportion of the natural increase migrates beyond their boundaries, we want further information concerning the destination of the migrants.

It has often been suggested, and indeed the suggestion has frequently been made by myself, that the probable accuracy of the estimate of population might be tested by the birth-rate. It has even further been suggested that the population might be estimated from the birth-rate. It should however be pointed out that whereas the birth-rate was for many years a pretty constant rate, the marked reduction that has recently taken place in the English birth-rate makes it exceedingly difficult to carry out this suggestion with a satisfactory result. It is impossible to say whether the decline in the birth-rate will continue or whether it may not again give place to a rise. The full nature and cause of this decline has not yet been investigated, as the results of the recent census are necessary in order to ascertain what the birth-rate in recent years has really been, and whether the undoubted decline has been relatively equal in urban and rural districts. In the meantime therefore it is quite impossible to hold out much hope that what may be called the birth-rate method will afford much assistance in the calculation or rectification of estimates of population in intercensal periods. In connection however with this subject a few facts bearing upon this recent marked decline of the birth-rate may be interesting and useful.

Until the enumerated population of England and Wales at the recent census is officially announced, it is impossible to calculate what the real birth-rate in the whole community in recent years has been. As regards the population of the twenty-eight large towns, however, subject to the difficulties before referred to, it is now possible to estimate the population in the middle of each year with approximate accuracy. It appears that in the aggregate of the twenty-eight towns the birth-rate steadily declined from 35·6 in 1881, to 31·7 in 1890, the mean rate in the ten years being 34·1 per 1,000, against 37·1 in the ten preceding years 1871-80. In London the birth-rate declined from 34·8 in 1881, to 31·3 in 1890, the mean rate in the ten years being 33·3, against 35·4 in the ten years 1871-80. In the twenty-seven provincial towns the rate declined from 36·6 to 32·6, the mean rate being 34·8, against 38·4 in the preceding ten years. Thus the decline in the birth-rate during the last decade, compared with that in the preceding decade, was 6·0 per cent. in London, and 10·3 per cent. in the aggregate of the twenty-seven provincial towns. This decline in the birth-rate varies very considerably in the different towns, but it is impossible to pursue the inquiry further on the present occasion.

There is one other method for estimating the population of towns in intercensal periods which should now be referred to: this is what may be called the inhabited house method. It should, in the first place, be pointed out emphatically that an inhabited house for census purposes is very far from being identical with an inhabited house for rating purposes, and that therefore any attempt to compare the census numbers of inhabited houses with the numbers on the rate books is absolutely useless and misleading. If this fact, however, were fully recognised, it is impossible to doubt that the increase of inhabited houses on the rate books affords a most valuable indication of the growth of population. On the other hand, it has been urged, not without good reason, that the rate books as now kept do not yield satisfactory information, (1), on account of the large amount of compounding for rates in respect of industrial dwelling and tenement property, which interposes almost insuperable difficulties in the way of ascertaining the number of inhabited houses at any given date; and (2), because the number of persons per house varies so considerably with commercial prosperity as it affects wages among the labouring classes. While, therefore, this method cannot be recommended as free from difficulty and drawback, it may fairly be urged that no better method appears at present to be available, and that it is certainly worth a fairer trial than it has yet had. It is very desirable that the matter should be seriously discussed by local authorities, and that rate books should be kept on a more uniform system, in order that they might yield more satisfactory evidence of the growth of towns. A trustworthy annual return of inhabited houses on the rate book, furnished by sanitary authorities, if compiled from year to year on a uniform system, could not fail to give invaluable assistance in framing estimates of population between censuses. It is, however, a fact that the local authorities in many of the towns in which this information was most needed (including, if I mistake not, Liverpool), declined to furnish this information when requested to do so by the Registrar-General for estimation purposes.

Effect of Erroneous Estimates upon Birth-Rates and Death-Rates.

The figures given in Table III show the percentage of error in the estimates of the population in the middle of this year in the largest English towns, based upon the rate of increase that prevailed between 1871 and 1881. These figures show that the estimate for the aggregate of the twenty-eight towns exceeded the more correct estimate based upon the recent census numbers by about 6 per cent. This implies that the rates calculated on this over estimate were 6 per cent. below the correct rates. As however the over estimates in the case of Liverpool and Salford were equal to 20 per cent. and 25 per cent. respectively, the true rates were no less than a fifth and a fourth above the rates recently published. These extremes of error however only apply to the rates relating to this year, the percentage of error having necessarily increased with the lapse of time since the last census. In order to show precisely the effect of such erroneous estimates, the population of Liverpool and Salford has been estimated back to 1881, on the basis of the numbers enumerated at the two censuses in 1881 and 1891, and the birth-rates and death-rates for each year have been recalculated. The results of these calculations are shown in Table IV. Thus the birth-rate in 1890 in Liverpool is raised from 28·8 to 34·0, and in Salford from 28·8 to 35·6; and the death-rate in Liverpool from 23·6 to 27·8, and in Salford from 22·4 to 27·6.

TABLE IV.—*Showing the Birth-Rates and Death-Rates in Liverpool and Salford, calculated on the Hypothetical Estimate, and on the Estimate based upon the recent Census Numbers.*

Years.	Liverpool.				Salford.			
	Birth-Rates.		Death-Rates.		Birth-Rates.		Death-Rates.	
	On Old Estimates.	On New Estimates.	On Old Estimates.	On New Estimates.	On Old Estimates.	On New Estimates.	On Old Estimates.	On New Estimates.
1881	37·6	37·7	26·7	26·8	38·8	39·0	22·6	22·7
'82	36·7	37·5	26·5	27·1	38·9	40·0	23·2	23·9
'83	35·2	36·6	26·7	27·8	35·7	37·5	22·4	23·6
'84	35·2	37·3	25·2	26·7	35·6	38·3	22·3	24·0
'85	33·7	36·3	23·8	25·7	34·4	37·8	21·1	23·2
'86	33·5	36·7	23·8	26·1	34·4	38·7	22·1	24·8
'87	31·2	34·8	23·7	26·5	31·9	36·8	22·2	25·5
'88	29·7	33·8	20·3	23·1	31·6	37·3	21·1	24·9
'89	29·2	33·8	21·6	25·0	30·0	36·1	20·5	24·7
'90	28·8	34·0	23·6	27·8	28·8	35·6	22·4	27·6

Naturally the changes in the rates are comparatively small in the early years of the decade, but the mean of the death-rates in Liverpool during the ten years which have been published by the Registrar-General, and too readily adopted by the local sanitary authority, was 24·2, whereas the corrected rate is 26·3. Moreover, as the error of estimate was an increasing one, the published series of rates showed a most encouraging decrease of mortality from 26·7 in 1881 to 23·6 in 1890, whereas the new figures are 26·8 in 1881 and 27·8 in 1891. The case of Liverpool is exceptional, but in many of the towns the over-estimate of population exceeded 10 per cent., with a corresponding under-statement of the death-rate. In one or two of the towns the error was in the opposite direction, and under-stated the population. In its effect on sanitary progress, however, under-statement of the death-rate is far more serious an evil than its over-statement, although both are detrimental to the best interests of public health.

Conclusion.

It is scarcely necessary before this Society, which has during a long series of years so fully recognised the importance and value of a trustworthy census, to enlarge upon the evils that arise from our imperfect knowledge of the rate of movement of our population, especially in large towns, during the too long period that now separates our national censuses. It should moreover be borne in mind that the difficulties in the way of estimating the population of towns in intercensal years are likely rather to increase than decrease. The future of birth-rates is almost as uncertain as the future of rates of emigration. On the other hand the necessity for trustworthy death-rates grows greater every day. A former President of this Society may be said to have created the system of death-rates, and to have taught the State and the public how to use them and to value them. In spite of misuse by the ignorant and abuse by the interested, the power of the death-rate as a prime factor in health progress has hitherto constantly increased, and cannot yet be spared.

The well nigh insurmountable difficulties in the way of even approximately estimating the population of towns during ten-year periods must, however, seriously discount the public faith in mortality statistics, and a quinquennial census appears to be the only sure means for sustaining the credit and influence of death-rates, the failure of which would dangerously hinder and imperil the cause of sanitation.

DISCUSSION *on* MR. HUMPHREYS'S PAPER.

SIR RAWSON RAWSON asked whether the Census Commission had taken into consideration the fact that this year the census was taken in the midst of a holiday. This was no doubt a most important element in considering the increase or decrease of towns. He hoped it might prove that the aggregation of population in the large towns had diminished, which would be a blessing to the country and an encouragement to all those actively engaged in endeavouring to improve the welfare of the population. It seemed to him that the enumeration having taken place on the 5th of April, in the midst of the Easter holidays, had affected the town populations.

MR. NOEL HUMPHREYS said that recent censuses had been always taken in the early part of April, and it very often fell within the Easter holidays; and, indeed, that during the last five censuses it had very frequently happened that the census day was fixed very close to Easter.

MR. PRICE-WILLIAMS, having read this most interesting and tantalising paper, confessed to having a great craving for more information. One conclusion to be drawn from it was the paramount necessity for a quinquennial census. He thought that however interesting the preliminary results of the census might be, it was too soon to form any definite opinion such as that expressed by the author as to the cause of the apparent remarkable declination in the rate of increase of the principal towns he had referred to. The following few figures he had extracted from the

CENSUS RETURNS.—*Population of London and Greater London.*

Registrar-General's Areas.	Acreage ex-Water.	Population.	Increase.	Rate of Increase per Cent.	Population per Acre.
1861.					No.
Metropolitan area	74,427	2,803,989	—	—	37·67
Extra-metropolitan	367,160	418,731	—	—	1·14
	441,587	3,222,720	—	—	7·30
1871.					
Metropolitan area	74,427	3,254,260	450,271	16·06	43·73
Extra-metropolitan	367,160	631,381	212,650	50·78	1·72
	441,587	3,885,641	662,921	20·57	8·80
1881.					
Metropolitan area	74,427	3,816,483	562,223	17·28	51·28
Extra-metropolitan	367,160	950,178	318,797	50·49	2·59
	441,587	4,766,661	881,020	22·68	10·79
1891.					
Metropolitan area	74,427	4,211,056	394,573	10·34	56·58
Extra-metropolitan	367,160	1,445,853	495,675	52·17	3·94
	441,587	5,656,909	890,248	18·68	12·81

census returns already published showed that the remarkable falling off in the rate of increase observable in the population of London within the registrar-general's tables of mortality of "inner London," as it is called, was really attributable to the overflow of the population into the extra-metropolitan districts which constituted "greater London." He found that, notwithstanding that the rate of increase in the "inner London" districts, occupying an area of 74.427 acres (ex-water), had decreased from 17·28 to 10·34 per cent. during the last decade, in "outer London," representing an area of 367,160 acres, the rate of increase, which in the two preceding decades had been as much as 50·78 and 50·49 per cent. respectively, still further increased to 52·17 per cent. in 1891, and the population from 950,158 to 1,445,000. Taking the actual increases without reference to the rates, which were very often misleading, it would be found that while the increment of population within the registrar-general's tables of mortality between 1871 and 1881 amounted to 562,223, this declined in 1891 to 394,000, a decrease of 167,650. In "outer London," however, the population, which had increased from 631,381 in 1871, to 950,178 in 1881, an increment of 318,797, increased in 1891 to 1,445,833, showing a still larger increment of 495,675. The total increase, including the extra-metropolitan district, or in "greater London," in 1891 was 890,248, as compared with 881,020 in the preceding decade, showing clearly that there had been no arrest in the wonderful growth of the metropolis as suggested by the author. In Liverpool and most of the other towns mentioned everything pointed to the same cause, that it was not any arrest in natural growth, but that the population had overflowed its boundaries. In fact, within the last ten years there had been no interruption of the commercial prosperity of this country to account for any remarkable arrest in the growth of the population. He must say, therefore, without in any way disparaging the efforts of the author to bring a most interesting subject before them, he had, in his opinion, been premature in attempting to draw any such conclusion from the very partial information that had so far been afforded in the census returns. The author had drawn attention to the fact that in most of the twenty-eight towns referred to the rate of increase had been very much larger than in London, but it would be seen that although, as in the case of Portsmouth, the rate of increase had been as much as 24 per cent., it had reference to a relatively small population. He might mention that he had been engaged for some time previous to the publication of the last census returns in estimating the amount of increase of the population of London during the decennial period, and his results showed how nearly, according to the methods he had adopted, his estimates were correct. Taking the extra population of the metropolitan district he was only out 190,052, and he was much surprised to find in comparing the figures of each of the sub-districts how very closely, in many cases, he had forecasted the actual results. He believed that the plan of relying upon the difference of the birth and death-rates was utterly untrustworthy. He was rather surprised to hear, concurrently with the author's statement, as to the inexplicability of the causes leading to the decreased birth-rate, that the population, notwithstanding, had been so largely over-estimated. Nothing could better show how utterly unreliable the method of estimating the increase of population by that process was. He agreed with the author that a much closer approximation might be obtained by taking the population per house. He had used that plan himself as a test, and found the results arrived at were approximately correct.

Dr. LONGSTAFF said the paper was one not only of great academic interest, but of considerable practical importance; the author had proved to demonstration that a decennial census was totally inadequate for the purpose of calculating birth- and death-rates. It was very important to bear in mind absolute numbers as well as rates, especially in reference to migration, for it must be remembered that there was no necessary relation between the size of the population and the number of the migrants into or out of it. Birth- and death-rates in different towns bore something like a constant proportion taken over a term of years, but the case was different with regard to migration. In dealing with small places, such as Tottenham and Willesden, it was altogether deceptive to talk merely of rates. If a small place began to grow it would do so at an enormous percentage rate, *e.g.*, the addition of 20,000 in a small parish such as Willesden had been, showed a very large rate of increase. They must therefore bear in mind both absolute numbers and rates. The question of changes of curvature in the curve of the population was a matter of great interest. If they had a quinquennial census they would know within narrower limits when those changes occurred, but it would not necessarily follow that the estimates made from one five years to another would be as close as they were now. At the same time the amount of error would not be as great, because it would have only five years to accumulate, although it might accumulate faster. It might be possible for some towns to get an estimate of population by a school board census, which, though not giving infallible results, might throw some light upon the question. With regard to the birth rate method of estimation, if the population of the whole kingdom were calculated upon the natural increase and excess of emigration, then the birth-rate might be determined with fair accuracy, and that birth-rate from year to year would show certain fluctuations. Now it would probably be near the truth to assume that the birth-rate altered from its local normal in all the different parts of the kingdom at something like the same rate. With regard to Whitechapel, a ready explanation might be suggested for the decrease owing to the large clearances made by the Metropolitan Board of Works, but on careful inquiry he had found that that would only explain the decrease to a small extent; the removals having been effected since 1881, they could only account for about 1,500 people. One fact which no doubt accounted largely for the figures shown was the great immigration that had taken place of Polish Jews. With regard to the point raised by Sir Rawson Rawson as to the effect of taking the census in the holidays, that might be settled by seeing whether the returns from the watering places were unduly increased. He had seen a statement in the papers giving the approximate population for the whole of England and Wales. He presumed that was not official, but at the same time it was probably very near the truth. If so, it showed that the population of the United Kingdom had increased very much more slowly than in previous decades. He thought the author had scarcely paid sufficient attention to migration. He believed that a large proportion of the decrease of the towns was not due to the people having gone to the suburbs, but to their emigration to the colonies and to the United States.

Mr. WALFORD disagreed with the idea that the paper was premature. Any information on a subject like this, even if the figures were not quite so accurate as they would be when the definite figures were published, was of use in the present day, when we moved so quickly. The gist of the paper was that for the purpose of estimates a decennial census was useless. And any one who had considered the subject must be of that opinion, as it was perfectly clear that there were so many factors acting on the question of the migration of population, that it was useless to work out estimates from supposed rates of increase; for instance, in the metropolitan area they saw a very large increase in the districts of Tottenham, Enfield, Edmonton, Hornsey, and Hackney. Those districts were all on the Great Eastern Railway. Ten or twelve years ago that company had a terminus in Shoreditch, practically a considerable distance from the city; they now come to Liverpool Street, which meant increased facilities of locomotion for people living on that line, and therefore had tended to increase the population. Within the last ten years the Metropolitan Railway had constructed a line to Willesden, giving increased facilities to that district, and causing an increase. These were all factors acting on the amount of population, and must be taken into account. With regard to Nottingham, one of its principal industries was the lace industry, which varied very much with fashion, and therefore the movements of the population in a place like that must vary to a certain extent. The question of the birth-rate of the general population with regard to various towns might be discussed to a very considerable extent and advantage, though that was hardly the place to do so on that occasion. With regard to the reason of the variation in towns like Brighton and London, in order to get at the actual facts of the increase or decrease of London they would have to include places like Sevenoaks, Brighton, Hertford, Dorking, Taplow, and even Colchester, from which they came daily to London to earn their living, and many others to which people had emigrated, and which were entirely out of the metropolitan area. He quite agreed with the author that some more accurate system of estimating the population was wanted, than by simply estimating the increase on decennial censuses. Brighton had shown the smallest rate of increase of any town in England. There was a standing joke on the stock exchange that the death-rate at Brighton, a very low one, was fictitious, because whenever any one had any mortal illness there they were sent to London to consult one of the great consultants, so as to die in London and keep down the death-rate, but the truth of the low rate of increase he surmised was the large number of spinsters keeping lodging houses, and elderly people retired from business who reside there.

Mr. NEWBATT said he was rather inclined to use an expression given utterance to by Dr. Longstaff elsewhere, that they had been somewhat in a fool's paradise. Sir Rawson Rawson had said it would be a very happy thing if they could believe on sufficient authority that the growth of population in their large towns had received an effective check, but the figures produced that night did not by any means establish that point in his mind. Take for instance the town of Liverpool. It came as a startling surprise to most people to hear that the population of Liverpool had declined. The true explanation was he thought to be found in the fact that the Liverpool of the census return was the smaller Liverpool which had outgrown its boundaries, and that the municipal authorities had not yet recognised the true and larger Liverpool. The number of those concerned in the trade of Liverpool, and for whom Liverpool was the centre, would he thought, when the full returns came before them, be found to have increased. The point, however, of most importance to his mind which had been brought out was the serious result of the over estimate of population in causing an erroneous death-rate. The author of the paper, as an illustration of this had given the two cases of Liverpool and Salford. With regard to Liverpool there was nothing calling very much for remark. The old estimate of the death-rate in 1881 was 26·7; it was 27·8 according to the new estimate in 1891; and comparing the deaths with the true population year by year throughout the decennium there had been no marked change. With Salford the thing was quite otherwise. The supposed death-rate announced year by year during the last ten years began at 22·6 in 1881, and remaining very fairly stationary, left off in 1890 at 22·4. The true fact was that whereas the death-rate of Salford in 1881 was 22·7, in 1890 it had risen to 27·6, or an increase of very nearly 5 per 1,000 of the population. What did that very serious rise indicate with regard to the sanitary condition of Salford? Surely if figures were to be trusted it would indicate a great change for the worse. Possibly the explanation might be that Salford was one of those places that had greatly increased its density of population; but whether that was so or not, the fact remained that the over estimate of population had in this and in many other cases been sadly misleading, and had induced many people in many places to live in the fool's paradise of which Dr. Longstaff had spoken. He wished to add his voice to those who had preceded him in saying that the Statistical Society had for many years said that decennial censuses were obsolete and out of date. This country he hoped was rich enough and wise enough to see that it was for the national good that more frequent censuses should be taken, and he hoped that the startling results of the last census would act as a warning, and induce their legislators to take a new departure.

Sir Rawson Rawson, in agreement with the last speaker, hoped that the evidence afforded by the census of the insufficiency of their method of taking the number of their population at the wide interval of ten years, would overcome the apathy of parliament and the parsimony of the government in resisting what the Society had advocated for so many years. He himself should not be satisfied with a quinquennial census, but saw no reason why by proper administration even more frequent censuses might not be taken, and probably at no greater expense than a single decennial census. He thought that justice had hardly been done to the author, who, desiring to lay before the Society the earliest information that his office possessed, had prepared the paper, but stated distinctly that the conclusions drawn were liable to modification dependent upon the more extensive information to be derived from the larger data which they might hope to possess in a short time. It might be that the urban aggregation had affected the smaller to a greater extent than the larger towns, or on the other hand that the growth of some of the larger towns had taken place outside their arbitrary boundaries. They must not find fault with the inferences drawn from the figures which he possessed, and he hoped the Society would hear from him at a future period more correct results to be drawn from the completed returns. Whether their urban population had diffused itself into the suburbs of great towns, or whether the experience of past years had taught the rural population that it was in vain for them to rush into the towns, in either case the result was one for congratulation. He hoped that both of these processes had been going on, and that, owing to the facilities given, the labouring population were living outside the towns, and enjoying the advantages of a better atmosphere as well as the middle classes. On the other hand it could not be doubted that the experience of the last few years had taught the rural population that they were not likely to find in the heart of the great towns an improvement of their condition. It was suggested that the rural population, finding that the larger towns did not afford an opportunity for improvement, were taking refuge in smaller towns, and causing them to increase. All this remained to be seen in order to get the general results of the census. He did not think Dr. Longstaff's suggestion as to estimating the population in intercensal periods by the number of school children would be effectual, for the reason that any sudden increase of a town was usually caused by some increase of trade or production, creating a demand for labour, which was met not by the introduction of families, but by the influx of adults. He therefore doubted whether the suggestion would be effectual. The discussion of these matters was of great interest, and he desired to thank the author for having given the opportunity of bringing forward these questions.

Mr. A. H. Bailey thought that they had not done the author justice. He had said that the figures would be subject to slight corrections, but these would not alter the substantial results. The difficulty was that they were not always comparing like things. The London of 1801 was very different to the London of 1891. London now extended far beyond Croydon, and the majority of heads of families lived outside, coming up to London for their daily work. Therefore when they spoke of the population of London as having increased only 10 per cent. in the last ten years as compared with greater percentages in previous decades, he doubted whether that was really the case. They must take the much larger population of something like twenty miles round St. Paul's as a centre. It was the same in other large towns. While Liverpool had decreased 6 per cent. in the last ten years, Birkenhead had increased 18 per cent. Liverpool and Birkenhead were much the same as London and Southwark, and the reason for the difference was, the people whose daily work was in Liverpool lived across the Mersey.

Mr. M. N. ADLER thought there was no difficulty in accounting for the steady decline which had taken place in the birth-rate during the decennium. Dr. Farr had pointed out in 1851 that the birth-rate was intimately connected with the marriage-rate. Now, the birth-rate in 1876 was 36·3, in 1889 it was 30·5, and in 1890, 29·7, representing a decline of 18 per cent. In 1876 the marriage-rate was 17·6, in 1888 it was 14·2, and in 1889, 14·7, showing also a decline of 18 per cent. This steady decline Mr. Adler attributed to what might be termed economic factors. As trade was prostrate and industries crippled people deferred marriage, and it was well known that after the commercial prosperity which followed the Franco-German war there was a great reaction in 1875, and commerce and industries have only revived within the last few years. The decline in the marriage and birth-rates was thus readily accounted for. Mr. Humphreys's paper established that great changes in the curves showing the increase in the rate of population had taken place in the last intercensal period, and very properly dwelt upon the importance of ascertaining the exact date when the change in the curves took place. Here again the economic factors would have to be reckoned with. For instance, in the case of Liverpool, the decrease in the population must have taken place recently in consequence of the successful opening of large docks in the ports of Hamburg and Antwerp, both of which towns were now competing with Liverpool for the foreign trade. Again, it had been mentioned that the district of Enfield had shown a remarkable increase of population within the decennium. It was well known that in consequence of the penny fares which had been introduced by the Great Eastern Railway a few years ago for working men travelling between the city and Enfield, a large number of houses for the working classes had been erected in close proximity to Enfield, and one could readily fix the time when this large increase took place.

Mr. STEPHEN BOURNE said no doubt the paper was, as a former speaker remarked, tantalising, because it made them long for an amount of information that was not yet within their grasp, but still the highest credit was due to Mr. Noel Humphreys for the great readiness he had displayed in utilising the results to hand. No doubt they were insufficient. It was quite clear that from the record of twenty-eight towns it was utterly impossible to arrive at any conclusion as to the progress of the population of the whole kingdom, or to draw any accurate deduction as to the death or birth- rate of a particular locality, because they could not see how far the density of population had been increased or how far the population which really lived or acted in a particular district was removed beyond the border line. The operation of a birth- and death-rate on people who lived in a place was not confined so much to the locality as it used to be. Many births belonging to a place took place out of the district, and in the same way it was the tendency of invalids and sickly persons to go away from densely crowded places and possibly die elsewhere. It was therefore utterly impossible in these days of extended locomotion to say that the death-rate of any particular locality at all represented the actual amount of death which ought to be apportioned to it. It was clear that they knew nothing at all about the migration of the population, but the main point, and one of great importance, was with regard to the incidence of local taxation. He supported what had been said with regard to the more frequent censuses, and hoped that the matter would be readily met by the authorities. The expense of taking it once in five years ought not to be an obstacle. If the information obtained was of real utility there was no economic waste in the employment of the necessary labour, which consisted of extra service by enumerators and others that would not be used for productive purposes, and the amount of payment as concerned the whole nation was really like taking out of one market to put into another.

Mr. Rowland Hamilton expressed his high opinion of Mr. Noel Humphreys's paper, and said it was most fortunate that the apparent anomalies shown by the results of the census were brought forward at such an early period. He advocated the establishment of permanent well trained local staffs, by whose assistance the results could be worked out more quickly and intelligently than by those suddenly called in for the work at such long intervals as ten years. That was a point to be borne in mind if the Society should again address the Government on the subject.

Mr. Noel Humphreys in reply said he was aware that the time of discussion was from one point of view premature, and that therefore the conclusions drawn must be very moderately expressed. At the same time he thought that it could not but be useful for a Society like theirs to have an early opportunity to consider and discuss the figures given in the paper. He thought Mr. Price-Williams would on further consideration agree that there was the strongest evidence of a decided decline in the rate of aggregation in towns. It was an undoubted fact that in very many of these large towns the excess of births over deaths during the last ten years very considerably exceeded the enumerated increase, whereas in the preceding ten years the opposite was the case. He was disappointed that Mr. Price-Williams had not explained his method which he said gave better results than that initiated by Dr. Farr; but it appeared from Mr. Price-Williams's table that his estimate of the population of registration exceeded the enumerated number by 213,000, whereas by Dr. Farr's method the error was 260,000, showing that the result of the two methods was not very different. He did not at all wish to undervalue the importance of migration but as he was only dealing with twenty-eight towns, he had to omit that part of the subject, as no record of migration was possible for towns. He coincided with Dr. Longstaff's view, that the immigration of Polish Jews and others into Whitechapel was very probably the cause of the arrest of the decline in that district. He could not agree with the view expressed by Sir Rawson Rawson, that more frequent censuses might be taken without any increase of expense. It would no doubt be possible to have censuses of a very much more simple character, but after all the expense of the English census was so small, only about 128,000*l.*, or one-tenth of what the United States voted for their census, and as by far the greater part of it was paid to the local enumerators, although a census of a simpler character might be taken at smaller expense than the present decennial census, still it would necessarily cost a considerable sum of money, and one which the Chancellor of the Exchequer would, he feared, hesitate to concede. With regard to the boundaries of London, that the suburbs beyond even greater London included a number of those who formed part of the day population of the metropolis was beyond question. He pointed out with reference to Dr. Adler's remarks, that Liverpool and Birkenhead taken together showed an almost stationary population, and that as regards Liverpool he had no doubt there was a real decrease, although its extent could only be decided when they had the fuller returns before them. No doubt one of the main causes of the reduction in the birth-rate was the reduction of the marriage-rate, but there was a further fact that was not thus explained: there had been a decline in recent years of the proportion of births to marriages.

The President, in proposing a cordial vote of thanks to Mr. Humphreys for his excellent and timely paper, noted the well merited approval of its interest and value expressed in the discussion regarding it, and intimated his intention to confine his own remarks to the remedy suggested for the removal of the grave and crucial errors caused by a decennial system of enumeration of the people. These were such as not merely to diminish, but in some important particulars to neutralise, and even destroy, its value.

The remedy suggested, of a five-yearly census, would mitigate, but would not touch the root of the evil. Mr. Hooker had estimated for him the population of London in each year from 1881-91, on the supposition that the increase of 10·4 per cent. per decennium had been maintained throughout the period, and compared this estimate with that of the registrar-general, based on the rate of increase during 1871-81. From this it appears that in April, 1886 (had a census been then taken), the estimate for London would have been out by some 125,000. Some of the errors in the twenty-eight chief towns in England and Wales were in the direction of excess, and others of diminution, showing in either case fallacious results, which to a great extent neutralised their value in the direction pointed out in the paper, and in the remarks upon it.

It was useless, he said, to hope, in existing circumstances, to extract from any reluctant government or legislature we are likely to have in the present decade, any amendment of a system abandoned in most other countries; which abandonment was frequently urged with great authority, chiefly by this Society, in our own. He therefore was of opinion that an annual enumeration of the most important factors concerned, would alone prove a radical remedy.

The two works on the table, the Statistical Year Books of Berlin and Paris, showed how completely this could be effected with very considerable populations, embracing in their scope the demography of those important capitals. This, which has been accomplished for some years past in France and Germany, might surely be imitated with advantage by the ruling authorities of some of our own great centres of industry, without further interference from the legislature than the granting of such statutory powers as might be needed to collect the whole of the data required.

The late Sir Edwin Chadwick, in a paper republished in our *Journal* in 1888, pointed out the manner in which much of the work could be done at comparatively little cost, by agencies already in existence. The whole matter appeared to him (the President) to be deserving of careful investigation, without awaiting the commencement of a new century to place us on a level with our great neighbours in so obviously desirable a direction. He entertained at the same time no doubt that the material advantages of such a system would far exceed its cost, and not improbably lead to the establishment of a Central Statistical Bureau for the whole of the United Kingdom.

NOTE *on the* FUTURE PROVISION *of* PAPERS *of* INTEREST *and* VALUE *for the* CONSIDERATION *of the* SOCIETY.

THE great difficulty which has been experienced for some time past of procuring in advance a sufficient supply of papers of interest and value, so as to be ready at all times to provide against any unforeseen contingency from whatever cause it may arise, renders it, in my opinion, expedient and even necessary to take the matter into serious consideration at this period of the session, particularly as we have as yet nothing assured for next session, and a very desirable change has been effected in the *personnel* of our salaried staff, which will admit of action of a higher character being taken in the matter than was possible heretofore. With a thousand members enrolled, and the increasing attention now paid to questions of statistics and economics, there ought to be no insuperable difficulty in devising some practicable plan of securing the desired end.

2. With a view to the discussion of the question I venture to submit the following suggestions for consideration by the Executive Committee and for subsequent report to the Council, should we succeed in devising a scheme capable of being worked with our present paid agency and financial resources[1]:—

(*a*.) The founding of an Annual Gold Medal, to be called the Medal of the Royal Statistical Society, to be awarded to the author of the best paper read and discussed during each session. The award to be determined on the conclusion of each session, either by the appointment in each year of a Special Sub-Committee of three members or by the Executive Committee, the decision of such body being final.

From an inquiry made at my request by Mr. Hooker, it appears that medals of similar character are given by the Royal Society, the Royal Geographical Society, the Linnean Society, the Geological Society, and in particular the Society of Arts, the objects of all being the advancement of their special branch or

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[1] With regard to the financial resources of the Society, an estimate of the receipts and payments for the current year—based principally on the accounts for the last three years—has been prepared, and it is expected that there will be a balance of about 430*l.* at the end of 1891. This sum is larger than the balances of the last three years, owing to special outlays having been made in those years as shown below:—

1888.	Normal expenditure,	1,938*l.*;	special outlays,	189*l.*;	balance, 236*l.*
'89.	,,	1,904*l.*;	,,	156*l.*;	,, 291*l.*
'90.	,,	1,707*l.*;	investment	389*l.*;	,, 292*l*

branches of science and research, together with encouragement to new men to come forward.

The following particulars have been ascertained by Mr. Hooker from Messrs. Wyon and Pinches:—

Mr. Wyon estimates the cost of the die of a gold medal as proposed (obverse—a wheatsheaf, reverse—a wreath with the name of the recipient) at from 30 to 45 guineas, according to the finish, while the medal itself would be from 8 to 18 guineas, according to size.

Mr. Pinches' estimate for a similar medal is about 10*l.* for the die, and from 7*l.* to 13*l.* 10*s.* for the gold (22 carat) medal, according to size.

The Howard Medal of bronze could not, for obvious reasons, be devoted to any other purpose than that for which it was founded by the late Dr. Guy.

(*b.*) The consideration of the best means, with special reference to the duties of the present Assistant Secretary, of keeping in touch with writers on statistical, economic, and similar questions, such as are indicated in the inaugural address of the late Mr. Newmarch,[2] as fit subjects for the future consideration of the

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[2] "Let me now state what appear to me to be the fields of statistical research which in this country most require early attention. They are the following:—

"1. The annual consumption per head among different classes, and by the nation, as a whole, of the chief articles of food—corn, butchers' meat, tea, coffee, sugar, tobacco, wine, spirits, and beer.

"2. The annual production in agriculture, minerals, metals, ships, and manufactures.

"3. The comparative wages, house-rent, and cost of living in different parts of the country.

"4. The total annual income and earnings and the total annual accumulations of different classes, and of the country, as a whole.

"5. The relative taxation of different classes in this country, as compared with the same classes in those foreign countries, the competition of which England has to understand and meet,—carefully attending in the inquiry to the comparative merits of Direct and Indirect taxation.

"6. The financial and economical cost and burdens entailed by extensive warlike Armaments.

"7. Periodical statistics of Public Hospitals in the Metropolis and the larger towns, with a view to a comparison of the efficiency and cost of the relief afforded in each.

"8. Periodical returns of the income and operations of Charitable Trusts and Endowments, for relief and education.

"9. A statistical ascertainment of the numerical strength of the different Religious churches and sects.

"10. Statistical Evidence of the cost to the community in sickness, excessive mortality, and poor rate expenditure of defective dwellings, and sanitary regulations.

"11. Statistical Evidence of the gain to the community of instruction in popular schools in the rudiments of political economy, in the commoner industrial arts, and in military exercises.

"12. Statistical Evidence of the consequences in this country of the Emigration from it.

Society, together with such other topics of current interest as may from time to time arise, such as the questions of the relations of labour and capital, of strikes and trades unions, socialism in its protean forms, currency, and similar matters.

(*c*.) A circular embodying the above proposals to be prepared and circulated to such Fellows of the Society as may be considered to be likely to afford their aid either by writing papers or suggesting others who may do so.

This proposal was adopted in principle by the Executive Committee, and recommended to the Council for favourable consideration.

The Council resolved that my proposals should be printed and a copy sent to each member in order that the matter might be carefully considered at the May meeting, on the 21st of that month.

On that date it was decided that a Gold Medal, to be called the Guy Medal of the Royal Statistical Society, should be founded, with a view to its being awarded from time to time at the discretion of the Council in recognition of original statistical work placed at the disposal of the Society. All the details as to the design, and conditions under which the medal should be awarded, were left to the Executive Committee, who will take the matter into consideration after formal sanction at the Annual General Meeting.

F. J. Mouat,
President.

"13. Investigations relative to the advantages and cost to this country of the occupation of India.

"14. An investigation on grounds of fact of the effect of Commercial Treaties, especially of the French Treaty of 1860.

"15. A similar investigation of the consequences produced in the United States by the rigid system of protective Tariffs.

"16. And by the protracted suspension of specie payments.

"17. Statistical inquiries relative to the effects produced in Europe on commerce, accumulation, invention, prices, and the rate of interest by the Gold Discoveries in California and Australia.

"18. Investigations of the mathematics and logic of Statistical Evidence; that is to say, the true construction and use of Averages, the deduction of probabilities, the exclusion of superfluous integers, and the discovery of the laws of such social phenomena as can only be exhibited by a numerical notation."—Vol. xxxii, pp. 360—84, *Journal* of the Society, 1869-70.

MISCELLANEA.

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I.—*Preliminary Return of the Census in India.*

The following is the preliminary report of Mr. J. A. Baines, Census Commissioner to the Government of India, of the census taken on the 26th—27th of February last:—

"I have the honour to submit herewith to the Government of India three tables showing the results of the preliminary abstraction of the returns of the census taken on the 26th—27th of February last. The first table relates to British territory, and is complete, with the exception of the small Trans-Himalayan sub-division of the Punjab, and of British Baluchistán which is not brought under the general scheme of enumeration, but will be returned by households at a more favourable opportunity. The second table includes most of the Feudatory States in India, the exceptions being most of the petty States under Chota-Nagpur, a small State in Rajputána (Banswára), parts of Káshmir which are cut off from headquarters by the recent heavy snowfall on the higher ranges, and, lastly, Manipur. The returns for the Shán States will be prepared like those for British Baluchistán during the present season's tour, and no attempt at synchronous enumeration has been made there. The last table shows a selection of the more important towns in the country, with the corresponding return at last census.

"2. Before offering any comments on the results set forth in the above statements, I should perhaps explain the system on which they were prepared, which is laid down in my Circular L of the 18th of July last. As soon as the enumerators had completed the round of their respective blocks on the night of the 26th February, and collected the householders' schedules, when there were any, on the following morning, they repaired to the headquarters of the supervisor of their circle, and in his presence added up the population of their blocks by sexes, making at the same time a total of the occupied houses they had enumerated. The results of this addition were communicated to the supervisor alone, and he passed the book and forms to a second enumerator, who, without having any clue to the previous results, re-added the whole, and gave in his total. If the two agreed, the supervisor noted them in detail in the fly-leaf form provided as part of the enumeration book. If they differed, the book was given to a third enumerator, and so on, till the totals were ascertained to be correct and duly certified. The aggregate of block totals was then compiled by the supervisor, and sent, with the original books, to the charge-superintendent, who, after further compilation for his charge, handed them on to the chief officer of the tahsil, thana, or township according to the province. Finally, the collected totals reached the collector or deputy-commissioner, by whom a district total was compiled after due test and the incorporation of casual returns, such as those for camps of touring officials, of boats, &c. The results thus found were telegraphed to both the Provincial Superintendent of Census and myself, so that simultaneous compilation began three days after the final enumeration.

"3. The above is the system of communication prescribed, but whether it was in all cases duly observed I am of course unable to say. On the whole, however, judging from the general promptitude with which the returns were sent in, and the various additions and corrections which reached me later, I believe that not only the subordinate officials connected with the enumeration, but the district officers in person, must have interested themselves in this heavy addition to their already burdensome current duties. I may go further, and say that had it not been for the participation of the collectors and deputy-commissioners, not to speak of political officers, in this task, it would have been impracticable to have published the results within five weeks of the census. As it is, the statement for British territory was delayed in issue nearly ten days, owing to the exceptional failure of a single district officer in the Central Provinces to make a punctual return; otherwise the present tables would have been in the hands of government within a month from the final enumeration. Neither the provincial superintendents nor I myself have as yet had an opportunity of testing these summaries, but I have no reason to think that their accuracy is impaired by the speed with which they were compiled. It may be remembered in connection with this point that, taking British and feudatory territory together, the number of persons engaged on the 26th as enumerators was between 940,000 and a million, and that in Bengal alone the staff exceeded 309,000, so that each man had an average of only 300 entries to add together. The following statement shows the respective dates on which the first and the last district summary of each province was received from the district headquarters :—

Province.	Earliest.		Latest.	
	District.	Date of Receipt.	District.	Date of Receipt.
Madras	Nilgiris	4 Mar.	Coimbatore	17 Mar.
Bombay	Broach	2 ,,	Hyderabad (Sind)	9 ,,
Bengal	Manbhoom (corrected)	2 ,,	Singbhoom (corrected)	21 ,,
North-West Provinces and Oudh	Sultanpur	1 ,,	Garhwal (British)	10 ,,
Punjab	Peshawar	7 ,,	Dera Ghazi Khan	26 ,,
Ajmir	Ajmir	11 ,,	—	—
Central Provinces	Wardah	3 ,,	Chanda (corrected)	31 ,,
Berar	Buldana	3 ,,	Ellichpur	16 ,,
Coorg	Coorg	11 ,,	—	—
Assam	Lakhimpur	6 ,,	Darrang (corrected)	31 ,,
Upper Burma	Bhamo	4 ,,	Shwebo (corrected)	26 ,,
Lower ,,	Sandoway	4 ,,	North Arakan	20 ,,

"4. As regards the results of the census, I do not propose to anticipate comments that hereafter will have to be made upon the returns when finally abstracted, so I will offer no more than general remarks and explanations. The population dealt with will amount, when the full returns for the Feudatory States are in, to just under 286 millions, of which $220\frac{1}{2}$ live in British territory and $65\frac{1}{2}$ under feudatory rule. During the decade that has passed since the last enumeration, the gross increase has been 29 millions, the population of Italy or Prussia at their last census. Deducting 3 millions of population not brought under the census of 1881, the balance of 26 millions exceeds the whole population of cis-Leithian Austria, added in ten years to the soil of India. Taking only British territory, and excluding Upper Burma as a new acquisition, it appears that the population has risen from 198,655,160 to 217,487,370, which is about 1·6 per cent. above what I estimated in 1889 would be the probable number for whom schedules and enumerators would have to be provided. This indicates an annual rate of increase very nearly 14 per 10,000 higher than I thought would be the case. The actual growth is just under $9\frac{1}{2}$ per cent., and the slight relatively greater increase amongst females is no doubt attributable to greater confidence in the intentions of the government in taking a census rather than to an irregular advance of the sexes. We may account I think for the comparatively more rapid increase in feudatory territory in the same way; and in certain instances, as, for example, in the case of the Central Province Feudatories, there seems no doubt that the abnormal increase is mainly due to the fact that many of these small States happen to be just now more directly under British control or administration than they were ten years ago, as the difference between the rates of increase in the two sexes seems to indicate that immigration is not to be credited with the variation. On the other hand, there are instances where the female rate falls below that of males, and this is apparently more markedly a characteristic of the tracts most severely afflicted by the great famine of 1876-78 than of places which have enjoyed normal circumstances since 1881. The point is one that will receive due attention when dealing with the full returns, as without the age tables it is futile to attempt explanation.

"*Bengal.*

"5. Looking at the several Provinces individually, the first calling for notice is Bengal, which now returns a population 9 millions in excess of that of the United States of America at last year's census, spread over an area less than $\frac{1}{23}$ of that of the latter country. The general increase of $6\frac{1}{2}$ per cent. is spread over most of the province, but special causes have been in operation in certain tracts which have been cursorily noted by the provincial superintendent of the census. For instance, in Rajshahye and Nuddea there has been a gradually increasing tendency to malarial fever, owing to local causes, which has driven the people to a more salubrious neighbourhood; and luckily there happens to be good cultivable land available within a reasonable distance from these tracts. Elsewhere the increase seems to have been proportionately higher in Eastern Bengal than in either Behar or Orissa. On the whole, however, the ten years have thrown 29 more persons on every square mile of land, and now on that area there are on an average for the province no less than 474 individuals.

"*North-West Provinces and Oudh.*

"Here we have the population of the German Empire on less than one-half its area. The increase is within 0·87 per cent. of my forecast, and is most apparent in Oudh, the eastern districts of the North-West Provinces, and in the Hill Tracts. Here, again, the people have begun to press on the land at the rate of 22 per square mile during the ten years, and now number 442 against 416 on that area. As in Bengal, three or four districts show a decrease, due, it is said, to the agricultural deterioration of a portion of the Doab, whilst under the hill ranges of the north, where the population is nearly stationary, the same complaint is made as in Bengal, namely, the greater prevalence of malarial fever of late years; and the returns seem to show that it is not without foundation.

"*Madras.*

"In Madras, the population of which now about equals that of Italy with Belgium, the pressure of population over the whole presidency is considerably less than in the two provinces above reviewed; still there is very considerable congestion in the highly cultivated tracts to the south-east. My forecast of increase has been proved wrong by some 3 per cent., owing, no doubt, in some degree to the return of emigrants or to actual immigration into the famine tracts which showed such a depletion in 1881. The areas of a good many of the districts, however, have been considerably changed since that year, but the general results seem to show a very large increase in the centre and east, and less along the west and in the northern part of the Coromandel Coast. The populous district of Tanjore contrasts strangely with its neighbours in an increase of only 4½ per cent., as compared with 13 in Madura, 19 in South Arcot, and nearly 23 in Salem. The areality of the presidency has risen from 221 to 248 per square mile in the decade.

"*Punjab.*

"The Punjab, which, with its feudatories, has a population exceeding that of Spain and Portugal, has increased by nearly two million souls in British territory alone, and now supports 187 per square mile, or the same as continental France, against 170 in 1881 (calculated on the revised area return). In some degree the increase is no doubt only apparent, being due to more correct returns of women and children; but the extension of irrigation and cultivation, and of settlements on the waste lands of the province, is sufficient to account for a considerable growth of population.

"*Bombay.*

"Taking the presidency proper as distinct from Sind, Bombay occupies, as regards population, a place between Hungary and Spain on considerably less than the area of the former. As in the case of Madras, the re-population of the districts affected by the famine of 1876-78 has shown my forecasts to be considerably below the actuals. There has been also a very large rise in the two districts in which good cultivable land is available to the largest extent, namely, Khandesh and the Panch Mahals. In Sind the increase has been very large, 18¾ per cent., compared with 14½ in the rest of the presidency; and the return seems to indicate that this is a real, and not, in spite of the race and character of the population, only an apparent, variation. The areality of the whole Presidency is now 150 as compared with 131 at last census. Omitting from consideration Sind, with its large area of desert and barren mountain, the calculation results in an average of 207, against 192 in 1881, for the rest of the province.

"*Central Provinces.*

"Next in population come the Central Provinces, with a population of 10,761,000, rather above that of Holland and Belgium combined, and with 3½ times the area of those countries. The population per square mile is now only 127, against 117 in 1881. With an average increase of just over 9⅓ per cent., the districts known as the Chattisgarh show a relatively more rapid growth; but in the hilly tracts also the increase has been notable, and may partly be attributable to better counting.

"*Assam.*

"This province corresponds very accurately, both in area and population, with the returns for Roumania. It has increased in about the same ratio as the Punjab, and shows an areality of 117 as compared with 105 per square mile last census. There has been for some time past an endemic outbreak of a kind of fever known as the 'black disease,' which has proved very destructive in the Kamrup district, and even appears to have spread to some extent across the Brahmaputra. The large increase shown against the hill tracts in this province is probably attributable to extension of census operations as much as to the supposed prolificity of forest tribes.

"*Burma.*

"Passing by the smaller provinces, Berar, Ajmir, and Coorg—the latter of which, by the way, shows a remarkable diminution in its male population, of which I have as yet had no explanation—I come to Burma, where the census included very successfully a large tract never before enumerated. The people are far more widely educated than in India proper, and seemed to be able to appreciate and help in the work of the census, though in the matter of house numbering I heard instances in which their interest was a little too zealously exhibited in supplement of the official registration. Lower Burma, now equal in population to Portugal, shows an extraordinary increase, partly due to the extension of trade along the coast and railways, partly to actual increase of cultivation, as on the reclaimed tracts of the Thongwa district, where an increase of 55 per cent. is shown; and in Pegu, Hanthawaddy, and Tharawaddy, in all of which the increase is above the provincial average. In Upper Burma the official estimate, based on rough returns of taxation, has generally been largely exceeded. Though affecting but a small population, it is satisfactory to hear that the preliminary record of Wunthô, where there has recently been some disturbance, was secured by the Deputy Commissioner of Kathâ before the chief broke into hostilities.

"6. In conclusion, I should explain that I can at present do no more than submit without comment the returns for the selected cities and towns of India. The variations in population in such communities require, in order to be reviewed thoroughly, the details of age, sex, and birthplace, all of which will be available by the time I next place the figures before Government.

"J. A. Baines,
"*Census Commissioner for India.*"

Census of India, 1891. PRELIMINARY

Province.	Area in Square Miles.	Occupied Houses.		Population.	
				Total.	
		1891.	1881.	1891.	1881.
1. Madras	143,345	6,697,114	5,641,914	35,588,850	30,812,745
2. Bombay and Sind	125,393	3,391,650	2,825,469	18,826,820	16,469,199
3. Bengal	149,725	12,900,629	10,531,228	70,909,260	66,589,553
4. North-West Provinces and Oudh	106,111	8,194,065	6,866,503	46,922,690	44,107,869
5. Punjab	111,016	3,218,305	2,707,091	20,803,000	18,843,186
6. Ajmir-Merwara	2,711	102,572	64,118	541,890	460,722
7. Central Provinces	84,445	2,163,686	2,336,976	10,774,890	9,838,791
8. Berar	17,711	594,102	466,027	2,896,670	2,672,673
9. Coorg	1,583	26,724	22,357	*172,630*	178,302
10. Assam	46,307	1,107,323	859,388	5,422,620	4,881,426
11. Lower Burma	87,130	855,190	677,362	4,569,170	3,736,771
12. *Upper Burma*	69,012	551,556	....	2,984,730	....
Total continental	*944,489*	39,802,916	*32,998,433*	220,413,220	*198,591,237*
13. Aden and Perim	13 ?	6,908	5,254	41,910	34,860
14. Baluchistán Cantonments, &c.	10 ?	4,543	....	26,880	....
15. Andaman Islands (Port Blair)	12 ?	2,997	2,938	15,670	14,628
16. Laccadive Islands	80 ?	2,899	2,443	14,410	14,473
Total dependencies	*115*	17,347	*10,635*	98,870	*63,961*
Total British territory	*944,604*	39,820,263	*32,809,068*	220,512,090	*198,655,198*
Grand total, India*	1,583,276	*52,028,315*	43,404,675	*284,837,210*	255,689,178

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* Omitting in 1891 about 1,500,000 persons in feudatory territory and 9,500 in Trans- whom have been included above in the 1881 entries. In the total population the excess of enumerated by sex, and also (in 1881) the inclusion of the gross figures for Kashmir excluding the corresponding figures from those of last census in making the comparison, comparison of the continental total Upper Burma is omitted, but not in that showing the

TOTALS. PART A. *British Territory.*

Population.				Variation per Cent. since last Census.		
Males.		Females.				
1891.	1881.	1891.	1881.	Total.	Males.	Females.
17,601,990	15,250,617	17,986,860	15,562,128	+ 15·50	+ 15·42	+ 15·58
9,743,060	8,505,632	9,083,760	7,963,567	+ 14·31	+ 14·55	+ 14·06
35,339,940	33,122,832	35,569,320	33,466,721	+ 6·49	+ 6·69	+ 6·28
24,300,290	22,912,556	22,622,400	21,195,313	+ 6·38	+ 6·05	+ 6·74
11,226,100	10,202,607	9,576,900	8,640,579	+ 10·41	+ 10·04	+ 10·85
287,940	248,844	253,950	211,878	+ 17·62	+ 15·71	+ 19·86
5,390,990	4,959,435	5,383,900	4,879,356	+ 9·51	+ 8·70	+ 10·34
1,491,060	1,380,492	1,405,610	1,292,181	+ 8·38	+ 8·01	+ 8·78
95,660	100,439	*76,970*	77,863	− *3·19*	− *4·76*	− *1·15*
2,791,510	2,503,703	2,631,110	2,377,723	+ 11·09	+ 11·49	+ 10·66
2,415,200	1,991,005	2,153,970	1,745,766	+ 22·28	+ 21·31	+ 23·38
1,430,170	....	1,554.560	....	....	....	....
112,113,910	*101,178,162*	108,299,310	*97,413,075*	+ 9·49	+ 9·39	+ 9·58
28,900	22,735	13,010	12,125	+ 20·22	+ 27·12	+ 7·30
23,540	....	3,340	....	....	....	....
13,430	12,640	2,240	1,988	+ 7·12	+ 6·35	+ 12·68
6,510	6,835	7,900	7,638	− *0·44*	− *4·76*	+ 3·43
72,380	*42,210*	26,490	*21,751*	....	....	....
112,186,290	*101,220,372*	108,325,800	*97,434,826*	+ 11·00	+ *10·82*	+ *11·18*
145,314,930	129,995,641	*139,230,740*	123,992,222	+ *12·36*	+ 12·13	+ 12·64

Himalayan British territory, for whom the returns are not yet available, but the figures for
321,540 for 1891, and 1,701,315 for 1881, is due to the inclusion of Rajputana Bhils not
(1,534,972). In the last line allowance has been made for the returns not yet to hand, by
whilst the persons not enumerated by sex are left out of consideration in both cases. In the
expansion of the whole country.

Census of India, 1891. PRELIMINARY

State or Agency, &c.	Area in Square Miles.	Occupied Houses.		Population. Total.	
		1891.	1881.	1891.	1881.
1. Hyderabad*	81,807	2,028,213	1,859,600	10,458,930	9,845,594
2. Baroda*	8,570	534,858	479,643	2,414,200	2,185,005
3. Mysore*	24,723	886,620	733,200	4,859,760	4,186,188
4. Kashmir‡	*80,900*§	*480,300*§	....	2,507,240	1,534,972‡
5. Rájputána†	129,750	2,219,511	2,101,451	12,300,970	10,268,392†
6. Central India*	75,079	1,921,686	1,680,394	10,139,570	9,261,907
7. Bombay feudatories*	69,045	1,604,478	1,348,599	8,059,760	6,926,464
8. Madras ,, *	9,475	751,721	685,447	3,693,620	3,344,849
9. Bengal ,, ‖	37,515	518,900	505,546	2,709,750	2,947,308
10. Central Province feudatories	28,834	392,115	375,283	2,155,490	1,709,720
11. North-West Province feudatories	5,125	147,322	125,907	799,160	741,750
12. Punjab feudatories	38,299	722,328	655,215	4,256,670	3,860,761
13. Manipur‖	*8,000*§	....	45,322	....	221,070
14. *Sikkim*	*4,550*§	....	....	....	....
15. *Baluchistán*	....	....	....	....	....
16. *Shán States*	*40,000*§	....	....	....	....
Total feudatory territory	*638,672*	12,208,052	*10,595,607*	64,325,120	*57,033,980*

* Including the insulated British cantonments and stations. In Hyderabad the Chief Jágirs have not yet furnished returns, nor has Secunderabad shown the sexes separately.

† Including Bhils not enumerated by sex.

‡ The last Kashmir census was taken in 1873, and excludes, like the present one, the females of the dominant Hindu caste. The return from Gilgit too has been stopped by snow on the passes.

TOTALS. PART B. *Feudatory Territory.*

Population.				Variation per Cent. since last Census.		
Males.		Females.				
1891.	1881.	1891.	1881.	Total.	Males.	Females.
5,281,490	5,002,137	5,096,840	4,843,457	....	....	.....
1,253,180	1,139,512	1,161,020	1,045,493	+ 16·09	+ 9·97	+ 11·05
2,442,550	2,085,842	2,417,210	2,100,346	+ 10·16	+ 17·10	+ 15·09
1,277,630	....	1,123,100	....	....	....	....
6,416,010	5,461,493	5,750,530	4,640,556	+ 19·79	+ 17·48	+ 23·91
5,296,960	4,882,823	4,842,610	4,379,084	+ 9·47	+ 8·48	+ 10·58
4,119,070	3,564,441	3,940,690	3,362,023	+ 16·36	+ 15·56	+ 17·21
1,848,760	1,662,540	1,844,860	1,682,309	+ 10·43	+ 11·20	+ 9·66
1,372,020	1,502,759	1,337,730	1,444,549	....	....	....
1,086,590	867,687	1,068,900	842,033	+ 26·07	+ 25·23	+ 26·94
412,170	384,699	386,990	357,051	+ 7·74	+ 7·14	+ 8·38
2,322,210	2,111,779	1,934,460	1,748,982	+ 10·25	+ 9·96	+ 10·60
....	109,557	....	111,513	....	....	....
....	....	....	....	....	....	....
....	....	....	....	....	....	....
....	....	....	....	....	....	....
33,128,640	*28,775,269*	30,904,940	*26,557,396*	+ 14·37	+ *16·75*	+ *18·10*

§ Italicised figures are estimates only. The enumeration of the three last States is not to be taken till May, and will consist of a rough census by households only.

|| No return yet received for most of the Chota Nágpur feudatories, or from Manipur.

N.B.—The total population in 1891 and 1881 includes 321,540 and 1,701,315 persons respectively, who were not enumerated by sex. The percentage of variation in the total excludes the population of 1881, for which the returns in 1891 have not yet been received. Omitting those not shown by sex at each enumeration, the increase in the total is 17·35 per cent.

Census of India, 1891. PRELIMINARY TOTALS.—PART C. *Cities and Towns.*

City or Town.	Population.		Variation per Cent.	Remarks.
	1891.	1881.		
1. Calcutta and suburbs	840,130	741,600	+ 13·29	Area not identical.
2. Howrah and Bally	129,800	105,570	+ 22·95	
3. Gáya	79,920	76,410	+ 4·59	
4. Monghyr	56,970	55,370	+ 2·89	
5. Dacca	83,760	79,080	+ 5·92	
6. Bhagalpur	68,780	68,240	+ 0·71	
7. Darbhanga	73,320	65,950	+ 11·17	
8. Chupra	56,980	51,670	+ 10·27	Patna and Behar returns not yet received.
9. Bombay and island	804,470	773,200	+ 4·04	
10. Karachi	104,250	73,560	+ 41·72	
11. Poona	160,460	129,750	+ 34·77	
12. Ahmedabad	145,990	127,620	+ 14·39	
13. Surat	*108,000*	109,840	− *1·68*	
14. Sholapur	61,312	61,280	+ 0·05	
15. Hyderabad (Sind)	57,790	48,150	+ 20·02	
16. Hubli	50,780	37,680	+ 34·77	
17. Madras	449,950	405,850	+ 10·87	
18. Trichinopoly	90,730	84,450	+ 7·44	
19. Madura	87,430	73,810	+ 18·45	
20. Tanjore	*54,060*	54,750	− *1·26*	
21. Combaconam	*54,000*	60,000	− *9·00*	
22. Negapatam	58,850	53.860	+ 9·27	
23. Calicut	65,710	57,090	+ 15·10	
24. Salem	67,750	50,670	+ 33·71	
				25. Bellary return not yet received.
26. Nagpur	117,910	98,300	+ 19·95	
27. Jubbulpur	84,570	75,710	+ 11·70	
28. Lahore	176,720	149,370	+ 18·31	
29. Delhi	193,580	173.390	+ 11·64	
30. Amritsar	*136,500*	151,900	− *10·14*	Decrease in the city itself, whilst suburbs and cantonment have increased.
31. Pesháwar	83,930	79,980	+ 4·94	
32. Multán	74,510	68,670	+ 8·49	
33. Umballa	79,270	67,460	+ 17·51	
34. Rawal Pindi	73,460	52,980	+ 38·66	
35. Siálkot	54,930	45,760	+ 20·04	
36. Allahabad	176,770	148,550	+ 19·00	
37. Lucknow	272,590	261,300	+ 4·32	
38. Agra	165,340	160,200	+ 3·21	
39. Benares	222,420	199,700	+ 11·38	
40. Cawnpore	182,310	151,440	+ 20·38	
41. Meerut	116,300	99,570	+ 16·80	
42. Baréli	121,680	113,420	+ 7·28	
43. Shajehánpur	77,690	74,830	+ 3·82	
44. Moradabad	73,440	67,390	+ 8·98	
45. Farakhabad	78,180	62,440	+ 25·21	
46. Aligarh	*60,370*	61,730	− 2·21	
47. Sahúranpur	63,300	59,190	+ 6·94	
48. Gorakhpur	66,300	57.920	+ 14·47	
49. Mirzapur	82,660	56,380	+ 46·61	
50. Faizabád and Ajodhiá	79,200	55,570	+ 43·06	
51. Muttra	60,020	47,480	+ 26·41	
52. Rangoon	181,210	134,180	+ 35·05	
53. Mandalay	187,910	....	....	
54. Maulmain	57,920	53,110	+ 9·05	

Census of India, 1891. Part C. *Cities and Towns—Contd.*

City or Town.	Population.		Variation per Cent.	Remarks.
	1891.	1881.		
55. Hydrabad (Deccan)	392,730	354,960	+ 10·64	
56. Bangalore	179,670	155,860	+ 15·28	
57. Baroda	116,460	101,820	+ 14·38	
58. Rámpúr........................	*73,530*	74,250	− *0·97*	
59. Bhartpúr	67,560	66,160	+ 2·12	
60. Patiála	55,960	53,630	+ 4·34	
61. Alwar............................	90,880	89,870	+ 1·12	
62. Ajmir............................	67,877	48,740	+ 39·26	Jeypore and Bhaunagar returns not yet received.
63. Srinagar........................	120,340	....	....	

II.—*The White and Colored Population of the Southern United States*, 1890.

The following is reprinted from the *Census Bulletin* No. 48, dated 27th March, 1891:—

"The relative rate of increase of the white and colored population of the southern States during the last decade is a matter of such general importance and interest as to demand special attention. What is termed the race count has therefore been made for the South Atlantic and South Central States, and for Missouri and Kansas, in advance of the main work of tabulation. As will be seen from the accompanying tables, the total population embraced in this count is 23,875,259, of which 16,868,205 were white, 6,996,166 colored, and 10,888 Chinese, Japanese, and Indians. In the States herewith included were found in 1890 fifteen-sixteenths of the entire colored population of the United States, so that for the purpose of immediately ascertaining the percentage of increase the returns of these States are adequate and not likely to be materially affected by the returns of the other States and territories, where the colored population is small.

"The abnormal increase of the colored population in what is known as the black belt during the decade ending in 1880 led to the popular belief that the negroes were increasing at a much greater rate than the white population. This error was a natural one, and arose from the difficulty of ascertaining how much of the increase shown by the Tenth Census was real and how much was due to the omissions of the census of 1870. This question has been fully discussed in Bulletin No. 16, and it is now merely necessary to add that the tabulations herewith given sustain the theory already advanced, that the high rate of increase in the growth of the colored population as shown in 1880 was apparent, not real, and was due to imperfect enumeration in the southern States in 1870.

"Attention is first called to Table I on the following page, showing the white and colored population of the States under discussion at each census since 1790, together with the number of colored to each 100,000 white, and the percentage of increase respectively of white and colored for the several decades.

"The table summarises the entire case. In 1890 there were in the States under discussion 6,996,166 colored inhabitants, and in 1880 6,142,360. The colored element increased during the decade at the rate of 13·90 per cent. The white population of these States in 1890 numbered 16,868,205, and in 1880 13,530,408. They increased during the decade at the rate of 24·67 per cent., or nearly twice as rapidly as the colored element.

"In 1880 the proportion of white to persons of color in these States was in the relation of 100,000 to 45,397. In 1890 the proportion of the latter class had diminished, being then as 100,000 to 41,475.

"During the past decade the colored race has not held its own against the white in a region where the climate and conditions are, of all those which the country affords, the best suited to its development.

TABLE I.

Years.	Population.		Number of Colored to 100,000 White.	Per Cent. of Increase.	
	White.	Colored.		White.	Colored.
1790	1,271,488	689,884	54,258	—	—
1800	1,702,980	918,336	53,925	33·94	33·11
'10	2,208,785	1,272,119	57,594	29·70	38·52
'20	2,831,560	1,653,240	58,386	28·20	29·96
'30	3,660,758	2,187,545	59,757	29·28	32·32
'40	4,632,530	2,701,901	58,325	26·55	23·51
'50	6,222,418	3,442,238	55,320	34·32	27·40
'60	8,203,852	4,216,241	51,393	31·84	22·49
'70	9,812,732	4,555,990	46,429	19·61	8·06
'80	13,530,408	6,142,360	45,397	37·89	34·82
'90	16,868,205	6,996,166	41,475	24·67	13·90

"Referring again to this table it is seen that in but three decades, that is from 1800 to 1830, during a part of which time the slave trade was in progress, has the colored race increased more rapidly than the white. Since 1830 the white people have steadily increased at a more rapid rate than the colored. This increase has not been effected by the aid of immigration, for with the exception of Kansas and Missouri these States have received comparatively few immigrants either from foreign countries or from the northern States.

"Similarly the proportion of the colored inhabitants to the white increased somewhat between 1800 and 1830, but since that time it has steadily diminished. In 1830, when this proportion was at its maximum, there were nearly 6 colored inhabitants to 10 white, but this proportion has been reduced to a trifle more than 4 at the present date, or by nearly one-third of its amount.

"The deficiencies of the ninth census are so apparent in this table that any extended reference to them is wholly unnecessary.

"Table II shows for each of the States under discussion the number of white, colored, Chinese, Japanese, and Indian inhabitants according to the census of 1890:—

TABLE II.

States.	Total Population.	White.	Colored.	Chinese.	Japanese.	Indians.
Total	23,875,259	16,868,205	6,996,166	2,581	100	8,207
Alabama	1,513,017	830,796	681,431	40	—	750
Arkansas	1,128,179	816,517	311,227	131	—	304
Delaware	168,493	139,429	29,022	38	—	4
District of Columbia	230,392	154,352	75,927	86	8	19
Florida	391,422	224,461	166,678	101	14	168
Georgia	1,837,353	973,462	863,716	110	1	64
Kansas	1,427,096	1,374,882	51,251	107	—	856
Kentucky	1,858,635	1,585,526	272,981	29	1	98
Louisiana	1,118,587	554,712	562,893	315	39	628
Maryland	1,042,390	824,149	218,004	197	6	34
Mississippi	1,289,600	539,703	747,720	122	1	2,054
Missouri	2,679,184	2,524,468	154,131	413	4	168
North Carolina	1,617,947	1,049,191	567,170	15	—	1,571
South ,,	1,151,149	458,454	692,503	20	—	172
Tennessee	1,767,518	1,332,971	434,300	64	10	173
Texas	2,235,523	1,741,190	492,837	727	3	766
Virginia	1,655,980	1,014,680	640,867	50	13	370
West Virginia	762,794	729,262	33,508	16	—	8

"Table III presents the composition of the population in 1890 and 1880 of each of the States named therein, expressed in percentages of the total population of each State:—

TABLE III.

States.	1890.			1880.		
	White.	Colored.	All Others.*	White.	Colored.	All Others.*
Alabama	54·91	45·04	0·05	52·45	47·53	0·02
Arkansas	72·37	27·59	0·04	73·71	26·25	0·04
Delaware	82·75	17·22	0·03	81·96	18·04	—
District of Columbia	66·99	32·96	0·05	66·44	33·55	0·01
Florida	57·35	42·58	0·07	52·92	47·01	0·07
Georgia	52·98	47·01	0·01	52·97	47·02	0·01
Kansas	96·34	3·59	0·07	95·59	4·33	0·08
Kentucky	85·30	14·69	0·01	83·53	16·47	—
Louisiana	49·59	50·32	0·09	48·40	51·46	0·14
Maryland	79·06	20·92	0·02	77·51	22·49	—
Mississippi	41·85	57·98	0·17	42·36	57·47	0·17
Missouri	94·23	5·75	0·02	93·29	6·70	0·01
North Carolina	64·85	35·05	0·10	61·96	37·95	0·09
South ,,	39·82	60·16	0·02	39·29	60·70	0·01
Tennessee	75·42	24·57	0·01	73·84	26·14	0·02
Texas	77·89	22·04	0·07	75·22	24·71	0·07
Virginia	61·27	38·70	0·03	58·24	41·76	—
West Virginia	95·61	4·39	—	95·81	4·19	—

* Chinese, Japanese, and Indians.

"Table IV shows the number of white and colored inhabitants of the same States at each census from 1850 to 1890 inclusive:—

TABLE IV.

States.	White.				
	1890.	1880.	1870.	1860.	1850.
Total	16,868,205	13,530,408	9,812,732	8,203,852	6,222,418
Alabama	830,796	662,185	521,384	526,271	426,514
Arkansas	816,517	591,531	362,115	324,143	162,189
Delaware	139,429	120,160	102,221	90,589	71,169
District of Columbia	154,352	118,006	88,278	60,763	37,941
Florida	224,461	142,605	96,057	77,746	47,203
Georgia	973,462	816,906	638,926	591,550	521,572
Kansas	1,374,882	952,155	346,377	106,390	—
Kentucky	1,585,526	1,377,179	1,098,692	919,484	761,413
Louisiana	554,712	454,954	362,065	357,456	255,491
Maryland	824,149	724,693	605,497	515,918	417,943
Mississippi	539,703	479,398	382,896	353,899	295,718
Missouri	2,524,468	2,022,826	1,603,146	1,063,489	592,004
North Carolina	1,049,191	867,242	678,470	629,942	553,028
South "	458,454	391,105	289,667	291,300	274,563
Tennessee	1,332,971	1,138,831	936,119	826,722	756,836
Texas	1,741,190	1,197,237	564,700	420,891	154,034
Virginia	1,014,680	880,858	712,089	1,047,299	894,800
West Virginia	729,262	592,537	424,033	—	—

States.	Colored.				
	1890.	1880.	1870.	1860.	1850.
Total	6,996,166	6,142,360	4,555,990	4,216,241	3,442,238
Alabama	681,431	600,103	475,510	437,770	345,109
Arkansas	311,227	210,666	122,169	111,259	47,708
Delaware	29,022	26,442	22,794	21,627	20,363
District of Columbia	75,927	59,596	43,404	14,316	13,746
Florida	166,678	126,690	91,689	62,677	40,242
Georgia	863,716	725,133	545,142	465,698	384,613
Kansas	51,251	43,107	17,108	627	—
Kentucky	272,981	271,451	222,210	236,167	220,992
Louisiana	562,893	483,655	364,210	350,373	262,271
Maryland	218,004	210,230	175,391	171,131	165,091
Mississippi	747,720	650,291	444,201	437,404	310,808
Missouri	154,131	145,350	118,071	118,503	90,040
North Carolina	567,170	531,277	391,650	361,522	316,011
South "	692,503	604,332	415,814	412,320	393,944
Tennessee	434,300	403,151	322,331	283,019	245,881
Texas	492,837	393,384	253,475	182,921	58,558
Virginia	640,867	631,616	512,841	548,907	526,861
West Virginia	33,508	25,886	17,980	—	—

"Tables V and VI show the number and the percentage of increase of white and colored persons at each decade since 1850-60 as follows:—

TABLE V.

States.	Increase of White.				Increase of Colored.			
	1880-90.	1870-80.	1860-70.	1850-60.	1880-90.	1870-80.	1860-70.	1850-60.
	No.	No.	No.	No.	No.	No.	No.	No.
Alabama	168,611	140,801	4,887*	99,757	81,328	124,593	37,740	92,661
Arkansas	224,986	229,416	37,972	161,954	100,561	88,497	10,910	63,551
Delaware	19,269	17,939	11,632	19,420	2,580	3,648	1,167	·1,264
District of Columbia	36,346	29,728	27,515	22,822	16,331	16,192	29,088	570
Florida	81,856	46,548	18,311	30,543	39,988	35,001	29,012	22,435
Georgia	156,556	177,980	47,376	69,978	138,583	179,991	79,444	81,085
Kansas	422,727	605,778	239,987	—	8,144	25,999	16,481	—
Kentucky	208,347	278,487	179,208	158,071	1,530	49,241	13,957*	15,175
Louisiana	99,758	92,889	4,609	101,965	79,238	119,445	13,837	88,102
Maryland	99,456	119,196	89,579	97,975	7,774	34,839	4,260	6,040
Mississippi	60,305	96,502	28,997	58,181	97,429	206,090	6,797	126,596
Missouri	501,642	419,680	539,657	471,485	8,781	27,279	432*	28,463
North Carolina	181,949	188,772	48,528	76,914	35,893	139,627	30,128	45,511
outh ,,	67,349	101,438	1,633*	16,737	88,171	188,518	3,494	18,376
ennessee	194,140	202,712	109,397	69,886	31,149	80,820	39,312	37,138
exas	543,953	632,537	143,809	266,857	99,453	139,909	70,554	124,363
irginia	133,822	168,769	88,823†	152,499†	9,251	118,775	18,086*†	22,046†
West Virginia	136,725	168,504	—	—	7,622	7,906	—	—

* Decrease. † Including West Virginia.

TABLE VI.

States.	Increase of White.				Increase of Colored.			
	1880-90.	1870-80.	1860-70.	1850-60.	1880-90.	1870-80.	1860-70.	1850-60.
	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.
labama	25·46	27·01	0·93*	23·39	13·55	26·20	8·62	26·85
rkansas	38·03	63·35	11·71	99·86	47·73	72·44	9·81	133·21
elaware	16·04	17·55	12·84	27·29	9·76	16·00	5·40	6·21
istrict of Columbia	30·80	33·68	45·28	60·15	27·40	37·31	203·19	4·15
lorida	57·40	48·46	23·55	64·71	31·56	38·17	46·29	55·75
eorgia	19·16	27·86	8·01	13·42	19·11	33·02	17·06	21·08
ansas	44·40	174·89	225·57	—	18·89	151·97	2,628·55	—
entucky	15·13	25·35	19·49	20·76	0·56	22·16	5·91*	6·87
ouisiana	21·93	25·66	1·29	39·91	16·38	32·80	3·95	33·59
aryland	13·72	19·69	17·36	23·44	3·70	19·86	2·49	3·66
ississippi	12·58	25·20	8·19	19·67	14·98	46·40	1·55	40·73
issouri	24·80	26·18	50·74	79·64	6·04	23·10	0·36*	31·61
orth Carolina	20·98	27·82	7·70	13·91	6·76	35·65	8·33	14·40
uth ,,	17·22	35·02	0·56*	6·10	14·59	45·34	0·85	4·66
nnessee	17·05	21·65	13·23	9·23	7·73	25·07	13·89	15·10
xas	45·43	112·01	34·17	173·25	25·28	55·20	38·57	212·38
rginia	15·19	23·70	8·48†	17·04†	1·46	23·16	†3·29*	4·18†
est Virginia	23·07	39·74	—	—	29·44	43·97	—	—

* Decrease. † Including West Virginia.

"Table VII shows the number of colored inhabitants in each of the States under discussion at each census from 1850 to 1890 inclusive, under the supposition that the total number of white was 100,000:—

TABLE VII.

States.	Number of Colored to 100,000 White.				
	1890.	1880.	1870.	1860.	1850.
Alabama	82,021	90,625	91,201	83,183	80,914
Arkansas	38,116	35,614	33,738	34,324	29,415
Delaware	20,815	22,005	22,299	23,874	28,612
District of Columbia	49,191	50,502	49,167	23,560	36,230
Florida	74,257	88,840	95,453	80.618	85,253
Georgia	88,726	88,766	85.322	78,725	73,741
Kansas	3,728	4,527	4,939	589	—
Kentucky	17,217	19,711	20,225	25,685	29,024
Louisiana	101,475	106,309	100,592	98,018	102,654
Maryland	26,452	29,010	28,966	33.170	39,501
Mississippi	138,543	135,647	126,328	123,596	105,103
Missouri	6,105	7,185	7,365	11,143	15,209
North Carolina	54,058	61,261	57,725	57,390	57,142
South "	151,052	154,519	143,549	141,545	143,480
Tennessee	32,581	35,400	34,433	34,234	32,488
Texas	28,305	32,858	44,887	43,460	38,016
Virginia	63,160	71,705	72,019	52,412	58,880
West Virginia	4,595	4,369	4,240	—	—

"The last two tables are of special interest, as they illustrate the movements of the colored element during the past half century. An inspection of them makes it evident that there has been no extended northward movement of this element since the time of the civil war. Indeed, with the exception of the District of Columbia, the border States appear to have lost rather than gained, and during the last decade there becomes perceptible a southward movement of the colored element from the border States into those bordering the Gulf, particularly into Mississippi and Arkansas, where they have increased proportionately to the white. Let the States under consideration be divided into two groups, the first comprising Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, Kentucky, Tennessee, Missouri, and Kansas, and the second South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, and Arkansas. In the first of these groups the increase of the white population from 1880 to 1890 was at the rate of 22 per cent., while that of the colored element was but 5·50 per cent. In the second group the rate of increase of the white was 29·63 per cent., while that of the colored was but 19·10 per cent. In the first group the number of colored to 100,000 white diminished between 1880 and 1890 from 26,700 to 23,089, or 13·52 per cent., while in the second it diminished from 80,116 to 73,608, or only 8·12 per cent. There is therefore a perceptible tendency southward of the colored people, which, while by no means powerful, has resulted in drawing a notable proportion of that element from the border States and in producing in two of the far southern States a more rapid increase of the colored element than of the white.

"Of the States under discussion, three, namely, South Carolina, Mississippi, and Louisiana, contained in 1890 a larger number of colored people than of white. Of the population of South Carolina more than three-fifths are colored. Five other States, namely, Alabama, Florida, Georgia, North Carolina, and Virginia, contained a colored element ranging from one-third to one-half of the population.

"*California by Race*—1890 *and* 1880.

"A special count by race was also made by this office for the State of California in order to separate the Chinese and Indians from the rest of the population, as required by the laws of that State, for purposes of State apportionment. For the State as a whole the white population has increased from 767,181 in 1880 to 1,111,558 in 1890, an increase of 344,377, or 44·89 per cent. The colored population in the State shows an increase during the decade of 5,419, or 90·05 per cent., while there has been a decrease in the Chinese of 3,451, or 4·59 per cent. The whole number of Indians in the State is less in 1890 than in 1880 by 3,922, or a decrease of 24·10 per cent. The number of Japanese in 1890 as compared with 1880 is large, although relatively small as compared with the whole population. The number of Japanese returned in 1890 is 1,099, as against 86 in 1880. The total population of the State for 1890 is 1,208,130, as compared with 864,694 for 1880, the increase being 343,436, and the per cent. of increase 39·72.

California.

	White.		Colored.		Chinese.		Japanese.		Indians.	
	1890.	1880.	1890.	1880.	1890.	1880.	1890.	1880.	1890.	1880.
The State	1,111,558	767,181	11,437	6,018	71,681	75,132	1,099	86	12,355	16,277

"ROBERT P. PORTER,
"*Superintendent of Census.*"

III.—*Emigration and Immigration in* 1890.

IN his Annual Report to the Board of Trade Mr. Giffen states :—

"I have the honour to submit herewith the usual tables relating to emigration and immigration for the year 1890, with comparative tables for previous years. In addition, I have also to submit, as was done last year, a set of tables relating specially to the immigration of aliens from Europe, along with information of a miscellaneous character which has been obtained from a variety of sources on the same subject.

"The usual tables, to repeat what has been said in previous reports, and what is now more important than ever to keep in mind, owing to the information of a different character now added relate only to the passenger movement between the United Kingdom and places out of Europe, excluding also all Mediterranean ports, being based on passenger lists obtained in the administration of the Passengers Acts, though some of the lists are from vessels not under the Acts, and the lists in these cases are obtained for the sake of completing the record. The additional tables, while specially related, as above explained, to the immigration of aliens from European ports, also bear upon the general passenger movement between the United Kingdom and European ports. It is proposed in the present report to deal first, in a separate part, with the usual tables relating to emigration and immigration to and from places out of Europe, and then to pass on to the discussion, in another separate part, of the new tables and information relating to the immigration of aliens from Europe, and the passenger movement generally between the United Kingdom and Europe.

Part I.

"The most general remark to be made on the tables relating to emigration and immigration to and from extra-European places is that the figures show farther progress in the direction indicated last year; and, which has often been referred to in previous years, when emigration is at a low point, immigration is also at a low point, and the excess of emigration over immigration is at a minimum; afterwards emigration and immigration both increase, but at first emigration more than immigration, so that the excess of emigration over immigration grows very large; in a later stage immigration increases more than emigration, and the excess of emigration diminishes, while the increase of immigration goes on even after emigration has begun to decline, so that the excess of emigration over immigration declines even more than emigration itself does; finally the circle is completed by emigration and immigration both declining, but still emigration more than immigration, so that the excess of emigration falls to a minimum. Such has been the experience of former periods of rising and falling emigration, and it would seem that the course of the present movement entirely corresponds. In 1889 a decline of the emigration from the high figures of previous years was noticeable, with a still greater decline of the net emigration, owing to immigration actually increasing, and in 1890 the same features are still observable generally. Immigration has again increased while emigration has been declining, and the excess of emigration in 1890 is consequently smaller than for several years. According to the usual rule, as noticed last year, a period of minimum emigration and immigration, with a small balance of net emigration, must be again approaching.

"Dealing with the figures as to British and Irish emigration only, we have the following figures of net emigration since 1887, when a maximum appears to have been reached:—

1887	196,012
'88	185,795
'89	150,725
'90	108,646

"The proportion to the total population is 0·28 per cent. only, or the lowest proportion on record in the table, which begins with the year 1876, with the exception of the three years 1876, 1877, 1878, when the percentages were 0·11, 0·09, and 0·17 respectively. In 1885, which was a minimum year, the percentage was 0·34, or rather higher than the percentage of last year.

"The experience of former years having thus held good until now with regard to the rise of emigration, which commenced after 1885, we may anticipate during the present year, and probably for the year after, even lower figures for gross and net emigration than those of the past year. Those figures still belonged to a period of increasing, or at least, stationary immigration, coupled with declining emigration. The years of absolute minimum are, however, usually marked by a low immigration, as well as a low emigration, and we have now to see whether, according to former experience, immigration as well as emigration will decline.

"It is to be observed, moreover, as bearing on this point, that the events of the past year have fully confirmed the statements in former reports as to the coincidence of a period of large emigration with the first years of prosperity succeeding a period of dulness in trade, and the falling off of emigration as prosperity reaches a maximum. To all appearance the maximum of the recent period of prosperity was reached in 1889-90, and the tendency at present is towards depression. The farther falling off in emigration, which there is now reason to anticipate, seems likely also, as was the case in former periods, to be associated with a period of depression in trade. No absolute rule, it will be understood, is being laid down. All that is noticed is the coincidence of an order in recent events with an order observable in former periods of increasing and decreasing emigration.

PART II.

"I have now to submit the tables and information which have been prepared, dealing with the subject of the immigration of foreigners from European ports, and especially the immigration of "destitute aliens."

"To make the information as complete as possible, the department has endeavoured, in the first place, to obtain a more complete view than has hitherto been obtained of the passenger movement between this country and European ports, which will supplement to some extent the view hitherto given in the tables in these reports of the passenger movement between this country and places out of Europe. If there were any great movement of immigration into this country, it should appear in the two returns in question. It is known that, on balance, there is a large emigration of foreigners from the United Kingdom to extra-European places, and if the net immigration from Europe is on the whole no greater than this emigration of foreign persons, it may be assumed that there is very little immigration of foreigners for permanent settlement into this country. Many of the foreign emigrants to extra-European places *viâ* the United Kingdom, are known, in fact, to proceed upon through tickets to their destination, but it is interesting, nevertheless, to see how the whole account balances.

"It appears that the principal railway and shipping companies carrying passengers between the United Kingdom and European ports, report the following passenger movement in 1890:—

	Number of Passengers.	
	Inward.	Outward.
Principal shipping companies	129,805	76,937
Belgian State mail packets (Dover and Ostend)	38,562	37,287
Railway companies	282,147	278,701
Total	450,514	392,925

"In other words, the balance of the passenger movement thus dealt with is as follows:—

Inwards	450,514
Outwards	392,925
Net influx	57,589

"And this is balanced on the other side by an efflux of foreigners to extra-European places, as shown by the tables in Part I, annexed, of the following amount:—

Emigration of foreigners to non-European places *viâ* the United Kingdom	94,515
Immigration of ditto from non-European places	44,663
Net emigration	49,852

"The two accounts do not exactly balance, as it was hardly expected they should do. There is a small passenger movement in the usual Tables of Emigration and Immigration, where the nationality is not recorded, while the figures of the passenger movement to and from European ports are not complete, as only passenger companies were applied to to give these returns of the total passengers they carry, and no particulars were applied for except as to passengers to and from ports in what is known as the home trade, Mediterranean ports in particular not being included. Even within these limitations also there are some companies, especially foreign passenger shipping companies, from which information has not been obtained. Still, so much of the whole passenger movement to and from the United Kingdom is comprised in the two sets of tables, that there can be little doubt of the conclusion as to the immigration into the United Kingdom for settlement being very small in comparison with the large figures here dealt with.

"The next set of figures to be referred to are those derived from what are known as the Alien Lists, under the Act 6 Will. IV, c. XI, which was a renewal, as far as registration is concerned, of older alien Acts. Under this Act every master of a ship arriving in this country with aliens on board is bound to hand a list of the names and descriptions of these aliens to the customs authorities. These lists, as far as London and Hull are concerned, have been summarised since 1888, and the particulars published; and in 1890 an attempt was made to enforce the Act, which had fallen into abeyance, at other ports, and to summarise the particulars thence obtained as well. In the year 1890 we have a record of no fewer than 90,851 aliens arriving in this country from European ports, arrivals from non-European ports, which are dealt with in the first part of this report being here excluded. This figure would have been somewhat larger if the lists had been obtained at all the ports throughout the year; but making allowance for the omissions caused by the fact that, except at London and Hull, the lists only began to come in in May last (1890), the total for the year would probably not exceed 99,000.

"This is a larger figure than that above stated as to the balance of the whole passenger movement to and from extra-European places; but the two figures do not correspond to each other, and until we are in a position to correct this last figure by a record of the aliens returning to the continent, we must be content to know from other sources that the figure is gross, and not net, and that there is no reason to suppose the net immigration of foreigners into this country from European places to be materially greater than the net immigration of foreigners from this country to non-European places.

"The difficulties of obtaining a return of the number of foreigners proceeding from this country to European places, it may be pointed out, can only be overcome by legislation. There is no such machinery now in existence as regards this passenger movement as the alien lists which masters have to hand in on arriving, or the passengers lists, under the Passengers Acts, which they have to hand in when passengers depart to or arrive from non-European places. The alien lists now dealt with, it must always be understood, relate to one side of the account only.

"It will be observed, however, on looking at the alien lists for London and Hull, where the results have now been given since 1888, that there is first of all a notable increase of aliens arriving at the Port of London, and that this increase is specially marked as regards arrivals from Hamburg. The total arrivals at London—

In 1890 were	14,262
" '89 "	9,846
Increase in 1890	4,416

"And the arrivals at London from Hamburg only—

In 1890 were	9,834
" '89 "	5,978
Increase in 1890	3,856

"Making some allowance for a portion of this increase being nominal only, in consequence of increased vigilance on the part of customs officers in obtaining the returns, I see no reason to doubt that there has been a substantial increase in the immigration of aliens into London in 1890, and an increase of that special immigration which has attracted so much attention of late years, that of Polish Jews, many of whom are in a state of great poverty, and some of actual destitution. An inspection of the alien lists of the vessels arriving from Hamburg clearly shows what the character of this immigration from Hamburg has been. The greater part of the increase may have been got rid of in some way or other, and the addition to the permanent settlement of Polish Jews in this country may not have been very great On this head, information, it will be seen, has also been obtained. But that the stream of immigration itself has been somewhat larger in 1890 than in the year before does not appear to be in doubt.

"Some increase also appears to be noticeable at Hull as regards aliens not stated to be *en route* for the United States.

"That there is some such increase in the immigration of Polish Jews *viâ* Hamburg is also apparent from the information which the Board of Trade has obtained through the Foreign Office from Her Majesty's consuls at European ports.

"As to the question how this immigration into the United Kingdom is dealt with, the Board of Trade have obtained statements partly from the Jewish Board of Guardians or other Jewish charitable agencies in London, Liverpool, Manchester, Leeds, and other large cities, and partly from the police authorities in those cities.

"The conclusions from these various statements as to immigration, and especially as to the immigration of Russian and Polish Jews, would appear to be as follows:—

"1. There is no question of a large immigration of foreigners into the United Kingdom. The bulk of the foreigners who arrive are in transit, and are accounted for by an emigration of foreigners on balance to non-European places.

"2. At the same time there was an undoubted increase in 1890 of the immigration of destitute aliens, particularly Russian and Polish Jews, who reach this country by way of Hamburg. The arrivals in London of aliens of every description were about 4,000 more in 1890 than in the previous year, and this corresponds almost exactly with the increase of arrivals in London from Hamburg in the same year. The total number of such arrivals last year is placed at about 9,000 by the Chief Commissioner of Police for the metropolis.

"3. A considerable portion of these arrivals is assisted either back again or onwards by various charitable agencies, principally the Jewish Boards of Guardians and the Russian Committee, and a larger number seems to have been assisted in 1890 than in the previous year; but these charitable agencies deal with the absolutely destitute only, and considerable numbers remain.

"4. This last view is confirmed especially by the statements from the police authorities at London, Manchester, and Leeds, who all report a noticeable increase in the Jewish colony at those places in 1890. The statements of the police authorities at Leeds are most specific on the point.

"5. It would be impossible to name any exact figure for the settlers of Jewish origin who came to this country last year, but apparently the number of 4,000 or 5,000 for the whole country would not be over the mark. It cannot be said that all are destitute in the strict sense of the word; on the contrary, the charitable agencies referred to have to deal with much smaller numbers; but they are mostly poor, and many, if not the objects of charity by public bodies, are assisted by friends until they obtain employment.

"6. The impression seems to have existed on the continent that there are societies in this country to stimulate the immigration of these destitute Jews, but as far as can be ascertained this is not the case. The impression seems to be accounted for by the fact which is noticed by the Chief Commissioner of Police for the metropolis, that the charitable agencies by assuring shelter and assistance to immigrants, do in fact stimulate the immigration, though that is not their object, and the fact which is noticed by the chief constable at Leeds, that a firm of money lenders advances money to the friends of immigrants, which is employed to bring them to this country.

"The census to be taken in the course of the present year will probably show what the exact immigration of Russian and Polish Jews for settlement in this country during the last ten years has been, and thus confirm or correct the information above given derived from other sources."

IV.—*The Influence of Customs Duties on the Price of Wheat.* By A. DE FOVILLE. (Translated from the *Economiste Français,* 9th May, 1891):—

FOR thirty centuries governments have employed and abused customs duties to such an extent, and the opportunity of discussing their principle and application has been so frequently given to those most concerned, that it is really astonishing that there is still room for inquiry into the question as to how far the prices of articles in the internal market of a country can be influenced by customs. If the point is not altogether cleared up, it is because the question is somewhat delicate, and especially because most of those who discuss it have taken up their position beforehand. According to the free traders, the threat of a rise in prices is the only argument capable of rousing the masses, and they consequently lay as much stress upon it as possible. Producers, who seek protection, also believe in a rise in prices, otherwise, what profit would they find in taxing imports? But, to do it well, "the fowl must be plucked without making it cackle," and hence there are a thousand little subterfuges to convince the simple mind that the duties are paid by the foreigner, and that the native consumer does not suffer. That may happen once out of a hundred cases, but for any one who knows how to set about it, nothing is easier than to make a rule out of an exception. Protectionists therefore deny freely the burdens inflicted on the mass of consumers by their own pet system. Whilst the public, between Hippocrates, who says one thing, and Galen, who says another, does not quite know what to think.

Even in the comparatively simple case of grain, people have never been able to agree. When, six years ago, our legislators were preparing to raise the duty on foreign wheat by 500 per cent. (3 frs. instead of 50 c. per quintal,[1] Act of 28th March, 1885), the same opposition arose as in the old days of the sliding scale. The 3 fr. duty found in the Senate an ardent supporter in the person of M. Kranz. This learned engineer was much too enlightened to deny the extra burden that would be laid on the French consumer; he affirmed—on the strength of some calculations of his own, to which M. Léon Say vainly asked for a clue—that the proposed duty would bring in 19 millions of francs to the treasury, and would cost the country 100 millions, *i.e.*, five times as much. The first of these evaluations has been very fairly justified, since the cereals, which before 1885 brought the customs annually 6 or 8 millions, yielded 11 millions in 1885, and 21 millions in 1886. The second evaluation was very much under the mark, as will be seen below, and M. Léon Say, like M. Girault, was right in estimating at 300 millions the resultant loss to the French people from the law of 1885.

The same question had been considered a few weeks before by M. Risler, in his remarkable *Etude sur la Crise agricole en France et en Angleterre*. The distinguished director of the "Institut agronomique" had thought to solve it *à priori*, in reducing it to what arithmeticians call a question of mixtures. He imagined France to be a great corn merchant, who has to furnish every year some 100 million cwt. to his customers. Of these 100 million cwt., the indigenous production supplies him with the greater part, but he may have, according to circumstances, to get in some 5, 10, or 20 million cwt. from outside. The tax of 3 frs., thought M. Risler, would therefore only have to be paid on $\frac{1}{20}$, $\frac{1}{10}$, or $\frac{1}{5}$ of the whole quantity consumed by the country. Therefore the total value, and consequently the average price of grain, will only be increased by $\frac{1}{20}$, $\frac{1}{10}$, or $\frac{1}{5}$ of 3 frs., *i.e.*, by 15, 30, or 60 c. Instead of costing 20 frs., for example, the cwt. would cost 20·15 frs. in the first case, 20·30 frs. in the second, and 20·60 frs. in the third.[2] This almost geometrical solution is alluring from its very simplicity, but it is only too easy to hit upon the weak spot. Is it not evident that if the duty helps the French cultivator to sell his harvest dearer, it is more on account of the importations kept out than of those which it still lets through? Suppose that to-morrow foreign wheat had to pay no longer 3 or 5, but 30 or 50 frs., obviously we should not get a sack, and bread would be priceless. Now, in this case, M. Risler's formula would give "no rise of prices." The theory, therefore, is wrong from the very beginning; and, to be convinced, there was no necessity to wait till facts had shown it.

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[1] One quintal = 110·231 lbs., *i.e.*, nearly 1 cwt.

[2] M. Risler's own formula is:—"The duty on foreign products will only raise the mean price in the French markets in the proportion in which these foreign products compete with our own means of satisfying the wants of the consumers."

Facts have shown it now. The 3 fr. duty lasted two years, the 5 fr. duty (Act of 29th March, 1887) has lasted four, and the best method of determining the influence exerted by this increased taxation is to consult the market rates. This is what has been done under our supervision, with great care and lucidity, by a student at the School of Political Science, M. Charles Lesage. His memorandum, read and discussed in that branch of the "Groupes de Travail" whose special object is political economy and finance, is now in print, and the well founded conclusions of the young statistician throw a great deal of light upon questions which might be thought destined to remain long in obscurity.

M. Lesage begins by following, with the help of official bulletins and averages, the variations in the price of wheat in the French market before, during, and after the customs reforms of 1885 and 1887. He shows that the fall in prices slackens after the establishment of the 3 fr. duty, and that prices begin to go up again after the 5 fr. duty was imposed. It is not this that we consider conclusive. Prices are affected by so many different causes that in these matters we must be chary of using the argument *post hoc ergo propter hoc*. A Belgian engineer, M. Godin-David, arrived, a short while ago, at conclusions very different from those of M. Lesage, by reasoning as did the latter on the successive prices in one region.

The true means of isolating the particular influence of customs duties is to compare, according to some regular method, the prices in "protected markets" with those in free markets. Formerly this comparison might have been erroneous, for a few miles of distance sufficed to change altogether the conditions of supply and demand. But prices have equalised themselves in different markets as the means of transport have become easier, more rapid, and more economical, and the commerce of cereals is one of those in which this equalising tendency is most accentuated. If we represent graphically the annual prices of wheat in the principal centres of consumption, Paris, London, Brussels, &c., the curves obtained astonish us by their disparity or their agreement, according to the period under consideration. Ten years ago, under the conditions of commercial freedom, the curves almost coincided with each other. This happy agreement has ceased since certain States have repudiated free trade, and wheat is now much dearer in France, Germany, Austria, Italy, &c., than it is in England, Holland, Belgium, and other free trading countries.

M. Lecouteux's *Journal d'Agriculture Pratique* gives us, in the last three numbers, the following quotations:—

Markets.	Price of Wheat per Quintal, 1891.		
	26th March.	2nd April.	9th April.
	frs.	frs.	frs.
Paris	27·25	27·50	28·25
Lille	25·75	26·50	27·00
Brussels	20·50	20·50	20·50
Antwerp	19·00	19·00	19·00
Amsterdam	19·00	19·00	19·00
London	17·25	17·25	17·25

Thus, according to the latest news, Paris paid 7·75 frs. more per quintal of wheat than did Brussels, 9·25 frs. more than Antwerp and Amsterdam, and 11 frs. more than London! For a good many months already the extra charge imposed on French consumers in general, and Parisians in particular, has considerably exceeded the duty. It is true that at other times the difference was not so great. It is in cases like these that the use of averages is legitimate and necessary. Now M. Lesage has calculated, week by week, the mean prices for a whole series of years, and this is the result, in his own words:—

"From 1876 to 1885, *i.e.*, during the epoch when France and England both enjoyed free trade, wheat was sold on an average at about the same price on this side of the Channel as on the other. The average prices in France kept at 35 c. below, and those in Paris 50 c. above those in London.

"During the two years in which a duty of 3 frs. was imposed (1885-86), the mean prices in France surpassed those in London by 1·95 frs., which were inferior to those in Paris by 2·25 frs.

"Finally, since the establishment of the 5 fr. duty (1887-90), wheat is sold on an average 6 frs. dearer in France, and 5·50 frs. dearer in Paris than in London.

"If for the London market we substitute the whole of Great Britain, and compare the French and English quotations we get similar results:—

"During the ten years 1875-84 wheat was sold at 27·32 frs. in France, and 25·54 frs. in England, *i.e.*, a difference of 1·78 frs.

"During the two years of the 3 fr. duty the French rates were 3·70 frs. higher than the English.

"During the four years 1887-90 the French quotations were 6·10 frs. above the English.

"We arrive therefore at the conclusion that the rise produced is equal to the duty levied.

"Now take the Belgian markets instead of the English as a means of comparison, and we get precisely the same results:—

"(*a*.) Period of free trade (1875-84)—

	Frs.	
Belgium	27·34	per quintal.
France	27·32	,,
Difference	0·02	,,

"(*b.*) Period during which a duty of 3 frs. was levied (1885-86)—

	Frs.	
France	21·78	per quintal.
Belgium	19·36	,,
Difference	2·42	,,

"(*c.*) Period during which a duty of 5 frs. was levied (1887-88)—

	Frs.	
France	23·63	per quintal.
Belgium	19·32	,,
		,,
Difference	4·31	,,

"As the prices in France and Belgium were exactly the same during the last ten years of the period when a duty of 0·60 fr. was levied in France, the 3 fr. duty ought to make them go up by 2·40 frs.; as a matter of fact they went up by 2·42 frs.; the 5 fr. duty should send them up 4·40 frs., and in reality they rose 4·31 frs.

"Here again the approximation is such as to appear almost improbable. Yet the agreement which we point out was not deliberately sought, since it is the result of a comparison of quotations collected by foreign administrations."

M. Lesage then proceeds to compare the German prices with the English, and there finds further materials for showing that the natural effect of an import duty is to raise the ordinary price of indigenous products by a quantity at least equal, and often superior, to the amount of the tax.

The law thus brought out from the complexity of daily events is therefore quite clear and simple. An import duty of 3, 4, or 5 frs. sends prices up in the country generally by 3, 4, or 5 frs.: the rise is equal, if not superior, to the amount of the tax. It is exactly what economists instinctively said, but with less certainty than they will henceforth say it.

From this identity as to amount between the duty and the rise in prices, it results that the 3 fr. duty costs the French consumers 300 million francs annually, and that the 5 fr. duty costs them 500 millions, while it only brings the Treasury 60 millions. Five hundred millions for bread alone.

If all the taxes and duties which the Commission on Customs has accumulated in its proposed tariff do not remain a mere scheme, the cost of living will so increase with us that we can predict, in a very short time, a reaction similar to that which, on the other side of the Atlantic, has so abruptly stopped the legislative exploits of Major MacKinley and his admirers.

[The above statement as to the increased burden on the consumers of a country through duties upon articles imported in competition with articles produced in the country is complete and conclusive, but a supplementary explanation on one or two points may be useful.

It is quite true that the cost of the article on which duties are imposed is increased by the amount of the tax, and this increase takes place upon the article produced at home as well as upon the article imported.

But the burden, nevertheless, upon the community *as a whole* is clearly only the amount of the duty on the article imported plus the additional expense occasioned by the diversion of industry through part of the article being produced at home, which would not have been so produced but for the tax and through other disturbances of industry involved; while even as regards the duty on the imported article, it is only one form of taxation, and if there is a relief of taxation in other directions equal to the amount of the duty, the amount of such duty is not an *additional* burden. Strictly the cost to the community as a whole is the expense of the diversion of industry occasioned by the tax.

As regards the raising of the price of the article produced at home, it is quite clear in the first place that such raising of price does not burden those who are producers as well as consumers in respect of their own consumption. If they sell the taxed product in one form, say grain, and buy it in another form, say flour or bread, they receive in the enhanced price of what they sell an equivalent for the enhanced price of what they buy; they are not damnified at all. In the next place, such raising of price is an actual gain to the producer upon everything he sells in excess of what he consumes himself, but at the expense of another consumer. Such a tax therefore amounts so far to a transfer of wealth from consumers who are not producers to those who are producers inside the community, though it is not really a burden upon the community *as a whole.* It is a mischievous thing, on account of the redistribution of wealth involved, but the exact nature of the mischief should be understood. It is not as if the community taken as a whole was made poorer by the whole amount of the enhancement of price.—Editor.]

V.—*The Influence of Civilisation upon the Movement of the Population.* By P. Leroy-Beaulieu. (Translated from the *Economiste Français*, 20th and 27th September, 1890.)

In times past economists were much exercised with regard to the rapid increase of the population, as their fear was that not only must it inevitably result in misery and suffering, but that the numbers of the population would increase in a much greater proportion than the means of subsistence. The rate at which the increase was accelerated grievously alarmed them. Malthus and John Stuart Mill were the two celebrated men who first insisted upon the necessity of endeavouring to control and regulate the principle of the increase of the population rather than of attempting to strengthen it.

It must not be imagined that these two writers were actuated by any but the purest motives, although John Stuart Mill proposed as a means of checking the population, preventive or repressive measures, which shocked public sentiment. As regards Malthus, what he advocated was continence, which he called "moral restraint." It was then a matter of firm conviction, at the end of the last century and in the first half of the present, that the uninterrupted increase of the population above a certain ill-defined limit would become a source of terrible danger to humanity.

Since the war of 1870, ideas upon this subject, for causes not far to seek, have undergone a considerable modification, and opinions are now expressed which are diametrically opposed to those previously maintained. It is on the one hand an economic phenomenon, and on the other hand a new combination of political circumstances which on the European continent have operated in relegating into obscurity and contempt the old doctrines of Malthus and John Stuart Mill. Successful attempts have been made to cultivate new worlds which, still insufficiently populated, yield, thanks to the capital supplied by the Old World, much more than is necessary for the requirements of their own population. The result has been that from the United States, La Plata, Chili, the Cape, and even from Russia, which in this connection may be regarded as a country in course of colonisation, an abundance of food supplies has flowed into the Old World.

The means of subsistence have thus so far increased in a greater ratio than the population, and, owing to the rapid development which has been effected in the means of communication, these food supplies of new countries which are sparsely peopled, have succeeded in supplementing and assuring the means of subsistence of the population inhabiting the old countries. Thus the opinion has been expressed by those who have not gone very deeply into the subject, that little importance is to be attached to the celebrated proposition of Malthus that, while population may increase indefinitely in a geometrical proportion, supplies of food and other necessary accommodations could not be made to increase faster during the same periods than in an arithmetical proportion. These superficial observers are never tired of repeating that the means of subsistence will never be wanting, whatever may be the numbers of the population, and as a proof of their dictum refer to the fall in the price of corn which has taken place during the last twenty years.

It is evident that those who argue thus entirely forget that the cultivation of new lands is but transitory. New countries will become one day, and soon perhaps, old countries. This may happen in one or two, or perhaps it may take as long as three centuries to effect, but not longer. According to the present outlook it is more likely to be in the course of one of the two former periods that this evolution will be effected. Within the next century the United States will have 200 millions of inhabitants, and Canada 20 millions; while La Plata will also have 20 millions, and Australia also, which latter country, be it observed, is only cultivable on a narrow border of the coasts. In the course of two centuries these numbers will probably have been doubled, and thus the question of subsistence for the whole world will again become a very burning one. We must not ignore the fact that if the countries of western Europe were obliged to depend for their means of subsistence upon their own food products and live stock, they would be in a sore predicament, and, again, when new colonies become old ones, which is merely a question of time, it is not to be expected that they will be able to export any very considerable quantities of food supplies.

However that may be, this contingency appearing to be so remote, does not seem to be sufficiently taken into consideration, and some appear to think that what is happening now will continue *ad infinitum*, whence it is argued that every increase in population is an unmixed blessing. Sufficient attention is not paid to the fact that certain countries owe a great part of the misery of their labouring classes to this rapid increase of the population which is so loudly vaunted. We refer more particularly to Belgium, Italy, and certain districts of Germany.

England is a favourite country to point to by those who argue in favour of the advantages derived by an increase of the population, as in that country the rapid development of the population has not prevented an increase in the wages and in the well being of all. It appears to be forgotten that England enjoys a kind of manufacturing monopoly, and that she supplies a large part of the habitable world with clothing, hardware, and coal. It holds therefore an exceptional position, and it may be questioned whether this may or may not be but transitory. In any case all nations cannot attain the same position, for if it were so, and all were equally advanced and skilful in industrial pursuits, they would each content themselves with their own products. Be that as it may, certain exceptional circumstances at the present time would appear to blind the generality of the public to the fact that the increase of the population beyond a certain limit (and we are far from asserting that this limit is reached in France) is not always an unmixed blessing.

Another circumstance, but of a political order, contributes to encourage this popular conception. This is the rivalry existing among the principal military nations of Europe, and the establishment of forced military service. This new military organisation leads to the belief that the reciprocal power of nations is closely connected with the number of their inhabitants, or at least as regards the male portion who are in a position to bear arms. Thus as at the present time the sentiments of national rivalry dominate all other sentiments, any check in the ascending movement of the population, and more particularly any stagnation or retrogression, has come to be considered as a disastrous evil, and a symptom of rapidly approaching political effacement.

It is evident therefore that on the continent at least the doctrines of Malthus and Stuart Mill are not held in very high estimation. They had in view, peace, well being, and universal prosperity; now everything appears to be regarded from a military standpoint. Things are no longer judged in an economic and philosophical spirit, and it is not men who have to be considered, but the numbers of recruits available for active service.

Thus opinions have become considerably modified on the question of the increase of the population, for while Stuart Mill, who for some years lived in France, was loud in his praises of the prudence and forethought of the French people who regulated in slightly increasing proportions the movement of the population, at the present day it is a matter of regret that this population is so kept down. On this subject Doctor Lagneau has written an interesting paper, which however does not throw any new light upon it, nor does it contain anything more than has already been proved by M. le Play, M. Levasseur, M. Maurice Block, M. de Foville, M. Loua, and others who for the last twenty years have directed public attention to this important question; Dr. Lagneau however was of opinion that public opinion was not disposed to devote much attention to it.

That the French population increases more and more slowly by its own natural increment is incontestable; we may go further and affirm that before the expiration of the next ten years, and perhaps before the lapse of half that time, it will be found that the birth-rate has fallen below the death-rate. From a military and political point of view this is undoubtedly a great misfortune; from an economic point of view the misfortune is not so great; but it is none the less regrettable because this decrease is premature. New countries being very far from sufficiently populated, France herself should have been in a position to assist in bringing about this object, and it would have been more desirable that this falling off which is observable in the French population, instead of taking place at the end of the nineteenth century, should have been delayed until the end of the twentieth, or even until the twenty-first.

From another and a more general point of view, this stagnation of the population, or the tendency to stagnation, which is not confined to France, but is observable in at least a great part of Belgium, in Scotland, even a little in England, and in certain districts of the United States, ought to satisfy the human race that there is little ground for apprehending that the earth would be peopled up to the highest limit to which population could be carried, and to relieve their minds of the fear of the misery and suffering which in the course of centuries would inevitably be entailed. From a close observation of contemporary facts it is evident that the development of civilisation and well being has a tendency to restrain the ascending movement of the population; and although France may perhaps suffer in its relative strength from an excess of this tendency, yet it may still have some compensating influence upon the happiness and comfort of her people.

The following are the facts in so far as regards France: From 1801 to 1810 the number of births was in the proportion of 32·3 per 1,000; from 1811 to 1820 it was 31·6; while from 1820 to 1830 it was 30·8. This proportion, which by reason of its lowness is much to be regretted, had not however anything very extraordinary in itself. It is true that it was lower than the actual birth-rate in Prussia, Bavaria, Italy, Austria, Hungary, and Switzerland, but it nevertheless assured to us an annual excess of nearly 200,000 births over deaths. From 1830 until 1850 the diminution in the birth-rate became accentuated. From 1831 to 1840 the proportion of births was in the ratio of 29 per 1,000 inhabitants, and from 1841 to 1850, of 27·4 per 1,000. Under the second empire there was another slight falling off. From 1851 to 1860 the average rate was 26·3 per 1,000; and it remained absolutely stationary during the period 1860-70. Since then the falling off has become more marked, as from 1870 to 1880 the mean rate was no higher than 25·4 per 1,000, and this proportion fell to 24·6 during the period 1881-85; it fell still lower in 1886, until in 1887 it reached 23·5, while in 1888 it was only 23·4. Since the commencement of this century therefore the procreative power of the nation has fallen from 32·3 per 1,000 to 23·4, or a loss of about one-fourth, and since 1870 alone this power has diminished from the proportion of 26·3 to 23·4 per 1,000.

In face of this systematic sterility which characterises the French race, we can only derive consolation from the fact that all other civilised nations appear to be tending in the same direction. Up to the present this tendency, it is true, has not been particularly marked, but soon, probably in a quarter or half a century, it will become more and more accentuated. According to M. de Foville, it was only in Austria and Hungary that the birth-rate was the same in 1882 or 1883 as it was in 1865. In Italy during this short interval the proportion of births to every 1,000 of the population fell from 38·3 to 36·9; in Prussia it fell from 39·1 to 36·3; in Bavaria from 36·9 to 36·2; in the Netherlands from 35·9 to 35·1; in Switzerland from 35·5 to 32·5; in Belgium from 31·4 to 30·5; in England from 35·5 to 33·7; in Scotland and Ireland the birth-rate fell to the same level as the French, namely, from 24·9 to 23·6 per 1,000. Moreover in England and Wales the number of births in 1888 was the smallest on record since 1876, and the report of the registrar-general for the first quarter of 1890 showed that the English birth-rate had fallen to 30 per 1,000, a proportion higher than the French rate, it is true, but much lower than that shown for all the preceding years.

Belgium offers a similar example. Here the birth-rate was only 29·4 per 1,000 in 1888, as compared with 30·3 in 1885 and 32·1 in the period comprised between 1871 and 1880. In 1840 it was 34·2, and the fact is worthy of some remark that it is particularly in the Walloon provinces, which contain the largest proportion of educated persons and those who are in easy and comfortable circumstances, that the birth-rate is low, while it remains comparatively high in the Flemish provinces, which are not characterised by the same degree of material ease and well being.

In France the only departments in which a high birth-rate is observable are the poorest, namely, Morbihan, Finistère, Côtes du Nord, Lozère, Corsica, Aveyron, La Vendée, Landes and the Nord, and the Pas de Calais, where a large number of Belgians are to be found.

A German newspaper, the *Frankfurter Zeitung*, which did us the honour of criticising an article we wrote on this important question in the *Journal des Débats*, affirmed that we had failed to furnish a shadow of proof in support of our theory that the development of the general well being, and the democratic condition of society tend to bring about a diminution in the birth-rate. It would appear that our German *confrère* is hard to convince, as we should have thought that an enumeration of the departments is in itself a proof of our assertion. The generality of these departments is signalised by moderate rates of wages, in many cases very low, by a somewhat low standard of education, and a very moderate school attendance. If we compare two maps, one showing the departments classified according to the number of married couples who have received a certain education, and the other the departments classified according to the birth-rate, we should find that these two maps would be almost the reverse one of the other. We do not for a moment assert that there are not certain exceptions, although there is not a single one of what we may term the educated department appearing in those characterised by a high birth-rate; while on the other hand the greater part of the latter, as for example Brittany, Haute Vienne, Aveyron, and Corsica, figure among the less educated departments. Neither do we affirm that education is the sole factor which reduces the birth-rate, as this is only one of the factors which, combined with material ease, less fervid religious sentiments, and an ardent desire to attain a higher and better material standard, form an aggregation of intellectual and moral qualities which are little favourable to a high birth-rate.

It is the same in Belgium. We have already called attention to the fact that in the Walloon provinces the birth-rate is infinitely weaker than in the Flemish provinces, while in the former there is a higher standard of education, and moreover wages are also higher. The subjoined tabular statement will show this very clearly:—

	Number of Persons able to Read and Write per 100 of the Population.	Average Daily Wages of Agricultural Labourers (Men) without Board.		Number of Births per 100 of the Population.
Flemish Provinces—		*s.*	*d.*	
Antwerp	59·41	1	2	3·52
Flanders, West	52·67	1	5½	3·17
„ East	51·68	1	4	3·12
Limbourg	57·68	1	3½	2·95
Mixed Province—				
Brabant	58·47	1	4½	2·98
Walloon Provinces—				
Hainault	54·88	1	11	2·43
Liège	61·88	1	11½	2·76
Luxembourg	73·42	1	11½	2·54
Namur	70·21	2	1½	2·34

The above table has been prepared from the data supplied by the *Annuaire de Statistique de la Belgique* for 1889; the figures relating to education and wages refer to the year 1880, no later data being available, while the birth-rates are for the year 1888. It shows that in all the Flemish provinces the birth-rate is high, education little advanced, and wages low, similar conditions being observable in Brabant; while on the other hand in the Walloon provinces the birth-rate is very low, wages are much higher, and, with the exception of Hainault, where there are a large number of coal mines, education is much more advanced. Thus we may take it that in general (but we are not prepared to say that it is an absolute rule without exception) a low birth-rato goes hand in hand with high wages and the spread of education. It also appears to be particularly associated with democratic aspirations, and still more with a lessening of religious belief on the part of the people, and a modification of the old ideas of resignation and submission to their lot.

In refutation of this theory, the case of Germany may be quoted against us, where instruction is general and the birth-rate very high, although of recent years it has certainly fallen; but it must not be forgotten that Germany, in spite of the spread of popular education, more nearly approaches the middle ages and the feudal or patriarchal times than any other country of Western Europe. Religious sentiments are still deeply implanted in the hearts of the majority of the people, more particularly of those inhabiting the rural districts; wages are by no means high, and the manners and customs in many German provinces as those of the olden times. Freedom of domicile and liberty to contract marriages are still in many districts of Germany of only recent date. This country, in spite of the rapid strides made by socialism, is essentially the country in Europe, excluding Russia, which is the most under the domination of old influences. We are unhesitatingly of opinion that as new influences proceed to take the place of the old ones, the birth-rate will diminish, symptoms of which have been observable now for some years past.

Thus what it has been agreed to call civilisation, which is really the development of material ease, of education, of equality, and of aspirations to rise and to succeed in life, has undoubtedly conduced to a diminution of the birth-rate.

It cannot be said that this falling off in the number of births, if it only brings in its train a smaller increase and not a diminution of the population in the old countries, is an actual misfortune, for the human race cannot go on indefinitely increasing on a planet which itself does not increase. But in the present condition of the world, now that so many lands are insufficiently populated, and that nations have established a forced military service, and are ready at any moment to declare war one with the other, this reduction of births, particularly when it manifests itself in a country like France for example, must certainly be regarded as a relative misfortune. In one respect it is particularly unfortunate. This is that in the case of a family consisting of one or two children, the excessive tenderness of the parents, their perpetual fears of misfortune happening to their offspring, and the manner in which the latter are frequently indulged, have the effect of depriving the male children of any spirit of boldness and enterprise and of any power of endurance. From this evil France is suffering at the present day.

Moreover in the age through which we are now passing, when such vast areas are demanding the industrial activity of civilised races, a nation of 40 millions of people, which, through births alone, does not increase to the extent of 200,000 or 300,000 annually (and France has arrived at that point when she does not obtain a third of this number), is not, from the point of view of energy of character and the expansive power of its race, in a satisfactory condition. On the other hand, the very rapid growth of the population such as that which has taken place in Italy, Germany, the Flemish provinces of Belgium, and the north of Portugal, cannot continue without bringing in its train much misery and suffering. An exceedingly low rate of wages, the impossibility or at least an extreme difficulty in ameliorating the lot of the people, are some of the consequences of this multiplication, of this excessive reproduction of the human species in limited areas. It is said, with truth, that the time will come when the soil will be much more productive and industrial activity much greater than it is at present. But the country districts of Flanders are among the best cultivated in the whole world; industries are in a fairly satisfactory state of development, and a vast trade is carried on at the port of Antwerp, and yet wages are miserably low in the province of Antwerp, which has a density of 337 inhabitants to the square kilomètre (more than four times the average density of France, which is 72 inhabitants to the kilomètre). They are equally low in Western Flanders, which has 228 inhabitants to the square kilomètre, and in Eastern Flanders, which has 315. On the other hand wages are much higher, as we have shown in the table given above, in the province of Luxembourg, a province certainly much less fertile, but which has only 49 inhabitants to the square kilomètre; and in Namur, where the density of the population is 92 to the square kilomètre.

In the Milanese districts, which are some of the best cultivated in Europe, the condition of the peasants is a deplorable one. Silesia, which has many natural advantages, is very productive; so also is the north of Portugal; but everywhere that the population is overcrowded misery and suffering come in its train. In this connection it must be understood that we do not refer to a country like England, which is characterised by special industrial conditions, and which it is impossible to generalise.

It is true that there are many different opinions expressed as to the number of human beings that the globe is capable of supporting. This interesting question was dealt with in September last at the meeting of the British Association for the Advancement of Science at Leeds. Mr. Ravenstein, who treated the subject from the geographical standpoint, read a paper, which attracted very considerable attention, upon the subject of the number of the population which the earth can feed, and the period at which that maximum would be attained at the existing rate of increase.

According to Mr. Ravenstein the population of the world was estimated for the present year to be 1,468 millions, and he found that this population every ten years increased 8 per cent. At this rate the population of the earth would be more than quadrupled in 182 years, and would then amount to 5.994 million souls. Such would be the condition of affairs in the last quarter of the twenty-first century. According to the same authority the superficies of the globe was over 46 million square miles, and out of that the fertile or comparatively fertile land was over 28 millions. The bare grass lands or steppes were 14 millions, and the bare deserts were 4,180,000. To decide the population of the cultivable area Mr. Ravenstein took representative areas and estimated their average population. In Europe he took the whole central region from the Netherlands to the Black Sea, a region fairly well cultivated up to its capacity, though further improvements of method might be taken to equalise the amount of the food exports and imports. Here there were 156 inhabitants to the square mile, and Mr. Ravenstein would seem to have applied this proportion to the generality of the 28 million square miles of fertile and comparatively fertile lands, and a slightly lower proportion to the 14 million miles of the poor grass lands or steppes, and he arrives at the conclusion that the population will amount to 5,994 millions in 182 years, and that number of people will be the utmost that the earth can feed. He even referred to the possible necessity of giving up animal food, and there is no doubt that meat is a very wasteful food, or that a given area of land could maintain a very much larger number of vegetarians than of flesh eaters.

All Mr. Ravenstein's conclusions on this important subject are, it may be observed, purely conjectural, and the London *Economist*, which devoted some attention to a review of his address at the sittings of the British Association, is perfectly justified in taking exception to them. There is, however, one objection which does not appear to have been made, and we think it would be well to direct attention to it. Too little at present appears to be known of the greater part of the globe to enable one to estimate even approximately the distribution of fertile lands, poor grass lands, and deserts—as a matter of fact it is the latter which appear to be the better known, and the division of the globe into lands fertile or relatively fertile and poor grass lands is in the highest degree hypothetical. It may, however, be said that Mr. Ravenstein has very much exaggerated the importance of the fertile or comparatively fertile lands in estimating them at 28 millions of square miles, and has minimised the importance of the poor grass lands in fixing their extent at only 14 millions of square miles. It is more than probable that these proportions should have been reversed. As far as it is possible to judge, Europe would appear to be particularly favoured, and equally so the south and east of Asia. Neither in the north of Asia, nor in Africa, nor the two Americas and Australia can one expect to find such a large proportion of fertile or comparatively fertile lands; and when account is taken of the enormous areas in Siberia and the centre of Australia, of the central Asiatic plateau, of the north of Patagonia, without speaking of the deserts of Gobi, Sahara, Atacama, &c., the conviction is forced upon us that in fixing the extent of lands fertile or comparatively so, at 28 millions of square miles, as against 18 million miles of poor grass lands, steppes, and deserts, a considerable over estimate has been formed.

From this point of view Mr. Ravenstein exaggerates the nourishing capabilities of the globe in assuming that agricultural science will remain in its present condition. It is very doubtful that the earth will be able to feed, cultivated as is the greater part of the European soil, the 5,994 millions whose existence is anticipated by Mr. Ravenstein in one hundred and eighty-two years' time, that is in the year 2072. But, on the other hand, it is certain that the rate of increase of 8 per cent. in ten years in the numbers of the population, even supposing it to be an accurate one (and for the generality of the world it can only be a hypothetical one) can not be maintained indefinitely. We have shown that the degree of civilisation, or rather the special rate of European civilisation, tends to diminish it. We may therefore rest assured that the number of the world's inhabitants in one hundred and eighty-two years' time will be much less than that estimated by Mr. Ravenstein.

Again, from another point of view, it is impossible to determine in an absolute and uniform manner the exact number of persons that a given extent of fertile land will support. This greatly depends upon the climate and the habits of the people. For example, Barbary, with the resources only of its soil, and without any industries whatever, supports more than 200 negroes to the square kilomètre; but the latter have very few wants, and for food are quite satisfied with a few bananas. It would be absolutely impossible for this country to support in any way an equal number of Europeans.

The London *Economist* observes that agricultural science will no doubt make very rapid progress, that agriculture itself is really in a primitive condition, even in old countries, because there has never been any great pressure upon their resources; that if all lands cannot be cultivated as a garden, the greater part of them may become highly cultivated, and this is only a question of hands, of care, and of manuring; that the increase of the population will supply the hands, that necessity and education will furnish the care; that so far as regards fertilisers, it is reasonable to expect that agricultural science will make at least as much progress in the future as it has made during the past generation, and that the fixation of the nitrogen of the atmosphere for manurial purposes has long been a chemist's dream, and it may any day become an accomplished fact, and on that event there would be a practically inexhaustible supply of the principal manurial element for the renovation of exhausted land, and for bringing every good soil up to a degree of productiveness never yet attained under the most favourable circumstances. It also refers to, cultivation under glass, which is only in its infancy, and states that, "as someone has pointed out, if we were put to it, we might even raise a great quantity of food under glass upon our house tops."

To all of this we have no objections whatever to offer, and will merely content ourselves with observing that it is impossible to determine the number of inhabitants that the earth will be able to feed—it may possibly exceed by very many the 6,000 millions of Mr. Ravenstein; but what is far from improbable is that in a much shorter time than is generally expected, in fixty or sixty years for example, and possibly in thirty or forty, the new world having, as much by the excess of births as by immigration, doubled or trebled the number of its inhabitants, a very decided rise in prices will begin to be experienced in the old world, which will affect some at least if not all articles of consumption.

This is no reason why a nation with a medium density of population, such as France, should consider the stagnation of its population as a circumstance in itself wholly insignificant, and one not calling for any special notice. This stagnation, for reasons to which we have already called attention at the commencement of this review, is sufficiently regrettable. But the question arises how is it to be remedied? The cause of it lies in the new mental condition of the population, and it is very difficult to change by laws or regulations the mental condition of a people.

Certain suggestions have been made which are absolutely ludicrous in themselves—such for example as the special taxation of the unmarried. This was tried under the Romans, but without effect. Moreover, when the law presumes to punish persons for acts which are in themselves morally lawful, then it strikes at the liberty of the subject. It would soon be found that the generality of the persons unmarried had very good reasons for remaining so, either infirmity, weakness of constitution, want of position, poverty, and sometimes they would be actuated by moral considerations of the highest order. A government therefore which would be ill advised enough to adopt such an absurd system of taxation, would very speedily be swept from power by the force of public indignation.

And, moreover, it is not in the insufficiency of marriages that the evil lies. In France there are almost as many marriages as elsewhere—at the present time the proportion is in the ratio of 7·4 to every 1,000 of the population—as compared with 7·8 in the period comprised between 1821 and 1830. The French marriage-rate is higher therefore than the Belgian, where there are 7·1 marriages only per 1,000 inhabitants—but in the latter country the infant population is much greater.

The evil consists in the small number of children to each family—the number in France being one, two, or three, where foreigners have four, five, and six. Does it therefore follow that it is necessary to give a bounty to those persons in France who have six or seven children? This is another very doubtful remedy. In the first place it is not the sixth or seventh child whose birth it is desirable to encourage, it is rather the third or fourth. Families consisting of six or seven children are so very rare that if they had an additional one or two it would result in but an insignificant increase to the population, and to give bounties to the third or fourth child it would be necessary, in order that the rewards should be efficacious, that an addition of hundreds of millions of francs should be made to the budget. We are however very far from saying that it would not be possible by judicious and inexpensive measures, by a good use of scholarships, of dispensations from military service and other expedients, to reduce to some extent the burdens of large families.

We are by no means disposed to recommend the re-establishment of so called *tours*, that is official foundling receptacles, as we regard these as both immoral and inefficacious, but we are at the same time quite prepared to admit that charitable societies might establish them under certain circumstances, if they were disposed to devote their time and their money to this object.

The true remedies, or rather the useful palliatives, are to be sought elsewhere. It is above all necessary to modify the spirit of our primary education, and more particularly of the teachers in our public schools; the school itself should in a far lesser degree stimulate the ambition of the pupil, the desire to put forth the whole strength in the endeavour to succeed in the race of life, and to attain a high standard of material well being. The scholastic aim ought to be rather directed to the inculcation in the minds of the pupils, if not of contentment with their lot, at least of more modest ideas, and of resignation to manual labour. The primary school of the present day, by the shortsightedness of the teachers, the folly of the scholastic programme, and the wild ideas that appear to have taken possession of those who have control of our educational system, is rapidly leading to a general *déclassement*, to universal ambition—and ambition is certainly opposed to the contraction of marriages, and the voluntary acceptance of the burdens of a family.

It is above all necessary to curtail the time that children are kept at school, to adapt it to rural or industrial occupations in such a manner that families may derive some advantages from the labours of their younger members. Formerly, both in the urban and rural districts, children as young as 7 or 8, or at least 10 or 11, performed certain allotted tasks. We admit that this is rather an early age for a child to commence work, but in any case attendance at school should not be obligatory after the child has reached the twelfth year; in no case should the factories and workshops in those countries which have experienced the need of an increased population, be closed to the child who is over 12 years of age—and this is what our neighbours the English, philanthropists certainly, but infinitely more practical than ourselves, have thoroughly realised. In the same way laws prohibiting married women, and those who are *enceinte*, or have recently been confined, from working, are instrumental in diminishing the population. To return however to the scholastic system, there is no doubt that discipline should certainly be relaxed in the rural districts, and more especially at the harvest time, and that classes composed of children of a certain age should be allowed to absent themselves in summer.

A kind of ridiculous pedantry would seem for some years past to have found its way into everything. It is useful to know how to read and to write, and to have some knowledge of history and geography, but to acquire these rudiments it surely is not necessary to devote long years of study and application; and moreover it is infinitely more useful that men should acquire at an early age a taste for those things which are to occupy them all their lives, that families should increase, and that the population should not be enfeebled. The regulations respecting apprenticeship, by reason of the introduction of too much idealism, are also becoming inept. It is desired that the apprentice should not render any personal service to the master, but then apprenticeship becomes too burdensome, and there is an end of the system.

Again, it may be asked if all the young girls who have adopted liberal or semi-liberal careers are not more or less condemned to celibacy? It would be curious to have a census enumeration of public school-mistresses, married and single, and of females holding government appointments. We are of opinion that the proportion of unmarried women occupying these positions is much greater than in the generality of females, the reason being that the majority of young girls who are appointed to these posts frequently look down upon the simple workman or peasant, and moreover as they are frequently being moved from place to place, they have not the same opportunities of contracting matrimonial alliances as others.

We need hardly point out that it is far from our intention to condemn either education in general, or that of women in particular, but rather is it our desire to point out simply what appears to be necessary to improve and to modify its tendencies. Every age is characterised by its particular craze. The present craze is for education, unlimited and injudicious, and for philanthropy equally unlimited and injudicious, both absolutely superficial. By their aid we have succeeded in producing a mental condition, and in creating certain social circumstances which are most unfavourable to the growth of the population.

In conclusion, we may observe that the most efficacious remedy is, for a country like France, which has many attractions for foreigners, to obtain the naturalisation of from 50,000 to 100,000 aliens annually. By this means the number of inhabitants would be increased, and the reproductive power of the country would, at the same time, be largely augmented.

VI.—*Notes on Economical and Statistical Works.*

The Economic Journal. Edited by Professor F. Y. Edgeworth. London: Macmillan and Co.

The *Economic Journal* consists of a series of articles on economics and kindred subjects, notes and memoranda on topics of current interest, reviews of books, and short notices of recent periodicals and new books. The articles in this first number are nearly all by well known writers: *The Eight Hours Day in Victoria* is by John Rae; *The Eleventh Census of the United States*, by Professor R. Mayo-Smith; *French Peasant Proprietorship*, by Dr. F. Seebohm; *Economic Doctrine in England during the Eighteenth Century*, by Dr. Cunningham; *The Living Capital of the United Kingdom*, by Professor J. S. Nicholson; *The Austrian School and the Theory of Value*, by Professor F. Wieser; *Some Aspects of the Theory of Rent*, by L. L. Price; *The Fall in Silver*, by H. Hucks Gibbs; *The Boycott as an Element in Trade Disputes*, by John Burnett; and *The Difficulties of Socialism*, by the Right Hon. Leonard Courtney, M.P.

The following is Professor Edgeworth's introduction in the first number:—

"The British Economic Association is open to all schools and parties; no person is excluded because of his opinions. The *Economic Journal*, issued under the authority of the Association, will be conducted in a similar spirit of toleration. It will be open to writers of different schools. The most opposite doctrines may meet here as on a fair field. Thus the difficulties of Socialism will be considered in the first number; the difficulties of Individualism in the second. Opposing theories of currency will be represented with equal impartiality. Nor will it be attempted to prescribe the method, any more than the result, of scientific investigation.

"Is it extravagant to hope that this toleration of the differences between the votaries of economic science may tend to produce agreement between them? 'A little generous prudence, a little forbearance for one another, . . . might win all these diligences to join and unite into one general and brotherly search for truth.' What Milton hoped for theology in the seventeenth century may prove true of political economy in the nineteenth.

"Meanwhile, it will be the task of the editor and his coadjutors, unbiassed by their personal convictions, to select the ablest representatives of each important interest. The Association is to be not only 'British' in its love of fair play and free speech, but also 'economic' in the character which the term suggests of special knowledge and scientific accuracy.

"As a fuller and more authentic statement of the principles on which the Association is based, the report of the speeches which the promoters of the Association delivered on the occasion of its foundation is submitted to the readers of the Journal by the Editor."

Political Economy in England. By L. L. Price, M.A. London: Methuen and Co.

This work forms another volume of the University Extension series, and is the more valuable because a short history of political economy in a popular form was greatly needed. The book is rather an exposition of the doctrines of the various English economists than, strictly speaking, a history of the science itself; but this serves to impress the more upon the reader the line of thought which characterises the principal Englishmen who have written on social questions. The chapters accordingly have a double heading: the name of the author and the particular subject which that author has more completely discussed. Mr. Price does not enter into the history of political economy prior to the time of Adam Smith, for (to quote his own words) "if we examine closely into the thought of those economists who preceded him, we find that he has presented it in such a form that in his hands it may be regarded as new." A short outline of Adam Smith's life shows his motive to have been a sincere love of "natural liberty," unfettered by the numerous restrictions of trade in force during his life-time. This chapter also contains an exposition of the theory of "division of labour" and of the true uses of money. Next we have Malthus with his ideas for restraining an excessive increase in population, in which however he does not take into account the enormous development of the means of transport that has occurred since his time. The theory of rent is reviewed in the chapter on Ricardo, and the theory of value in that on Mill. The author then points out the enormous influence exerted by Mill, which was such that for some twenty years after the publication of his "Principles," his views were accepted almost without demur, and the science remained practically at a standstill during that time. It is not till after this interval that we find any new names of note in economics, and the next chapter contrasts the deductive and inductive methods employed by Cairnes and Leslie respectively. The last three chapters are on Bagehot, Jevons, and Fawcett and Toynbee, and treat of the money market, statistics, and social reform. Living authors have been excluded, as their work is, it is hoped, not yet complete.

Elementary Political Economy. By Edwin Cannan, M.A., London: Henry Frowde, 1888.

Mr. Cannan's little treatise is divided into an introduction and three parts. In the first he considers the "general causes on which the material welfare of mankind and of nations always depends;" in the second he deals "with the causes which at present in this country, and in other countries which resemble it, determine the material welfare of individuals, if we exclude as far as possible the effects of State action;" and in the third and concluding part he "shows how the results of these causes are modified by the more ordinary actions of the State in a country like ours." For the most part Mr. Cannan travels over beaten ground, but he purposely avoids the use of the ordinary economic terms. In this way he has contrived to impart a freshness of treatment to many of the hackneyed topics of economic discussion; but he betrays also a tendency, unfortunately too common in economic writing, to find fault with the reasoning of his predecessors, and the controversial character of some passages of his book renders it more difficult than its title would indicate. In the first part he treats of labour, and of those "useful material objects" which he substitutes for the term capital. He examines the causes on which the productiveness of industry depends, whether they be the increase of knowledge, the accumulation of material objects, the growth of co-operation between individuals, or variations in production. In the second part he investigates the nature of exchange and the elements of value, and it is here especially that he enters on a somewhat difficult discussion of questions connected with the sources and the comparative sizes of incomes derived from property and from labour. In the third and last part he reviews the functions of the State, the question of protection, and the methods and aims of taxation.

Statistisches Jahrbuch der Schweiz (*Annuaire Statistique de la Suisse*). Herausgegeben vom Statistischen Bureau des eidg. Departments des Innern. Bern.

This is a very useful addition to the number of official Statistical Annuals. It was in 1887 only that the Swiss Federal Assembly decided that such an Annual should be issued, and the publication has been deferred till now in order to include in it the results of the census of 1888. Necessarily, it is in both German and French. It is a comprehensive work, every sort of official statistics for Switzerland being included. It is perhaps too detailed for an abstract. In future editions, it is proposed to omit those chapters in which there will be little or no change during the course of the year, on the plea that this will leave more room for other statistics, as is the case with the German *Statistisches Jahrbuch.* We cannot think this idea a good one: the chief use of annuals is for reference, and each year should be complete in itself. The work suffers somewhat from the comparative scarcity of details at the disposal of the Government on some points. As we learn from an account given of the different censuses in Switzerland, the earliest trustworthy enumeration is that of 1850, and there are very few older statistics on some subjects, so that there can be no comparisons with the results of former years. This is especially the case with regard to agriculture, public charities, and justice. On the other hand, the statistics on education, and agriculture in its present condition, are more detailed than in the annuals of most other countries, and there are, as we might expect, statistics as to the number of persons speaking German, French, and Italian. There are at the end two maps, showing (1), the density of the population, (2), the percentage of recruits refused for the army, amounting to more than 35 per cent.

Waterways and Water Transport. By J. Stephen Jeans. London: E. and F. N. Spon, 1890.

Mr. Jeans has furnished in this large volume a full, if not an exhaustive, account of the facilities for transport by water which are available in the various countries of the world; and he has added to this account a discussion of the chief questions which arise in connection with its cost and methods. His first section, which follows upon an introduction giving an outline of the book, consists of a description of the "waterways of different countries." In the opening chapter the importance of transportation generally is shown, and the place occupied by canals in particular in the history of industry is duly exhibited. In successive chapters Mr. Jeans reviews the improvements effected in the navigable character of certain English rivers, and the stages of development, actual and prospective, of the English canal system, and the history and condition of the waterways of Scotland, Ireland, France, Germany, Belgium, Holland, Italy, Sweden, Russia, Austria-Hungary, the United States, Canada, South and Central America, China, and British India. In his second section he proceeds to discuss the more special subject of ship canals, which is, at the present time, perhaps, of peculiar interest. The history of the Suez Canal is traced, and its immense results on the commerce of the world are exhibited. The vast difficulties, and the failure, for a time at least, of M. de Lesseps' second project, the Panama Canal, are then shown. The plans of the alternative Nicaragua Canal are examined, and Mr. Jeans then proceeds to the consideration of the Manchester Ship Canal in our own country, and of the Isthmus of Corinth Canal in Greece, and concludes this section of his book with a chapter on a scheme for improving the Thames by means of canal construction. The third and final section of the book deals with various matters of technical detail connected with the working of canals, and various matters of controversy respecting the cost of transport by water compared with that by land. The system of haulage and transport adopted, the construction and operation of locks, planes, sluice-gates, and lifts, the provision and execution of tunnels, viaducts, embankments, and weirs, the speed, character, and density of canal traffic, the nature and capacity of canal-boats, and the arguments for and against the acquisition and control of waterways by the State, are successively considered. In the appendix a chronology of river improvements and canal navigation in England up till 1852 is given, and tables are furnished showing the mileage under the control of railway companies, and that free from their control, the through routes of inland navigation in England and Wales, and the principal river systems of Europe and the United States. The book is illustrated by plans.

Cartogrammes et Diagrammes relatifs à la population Parisienne et à la fréquence des principales maladies à Paris, 1865-87. Paris: G. Masson, 1889.

This volume is an outcome of the Paris Exhibition of 1889. It comprises a selection made from a collection prepared and sent to that Exhibition by the Paris municipality. The diagrams of which it consists are based on data which are contained partly in the *Bulletin de Statistique*, partly in the *Annuaires Statistiques de la Ville de Paris*, and partly in a volume entitled *Résultats statistiques du dénombrement de* 1886 *pour la Ville de Paris, et renseignements relatifs aux dénombrements antérieurs.* They are preceded by an introduction, in which the increase in the population of Paris, which, together with that of its environs, has become five times as large as it was at the beginning of the century, and has grown more rapidly in the suburbs than in the centre, the amount of comfort prevailing among the inhabitants of each quarter, the number and character of the houses, the constitution of the population by occupation, its foreign elements, its constitution by age, sex, and civil status, its births and deaths, and the prevalence of different maladies amongst it, are successively considered. The diagrams which follow illustrate these introductory remarks, and show, with especial minuteness of detail, the prevalence of different diseases. They seem to have aroused especial interest at the Paris Exhibition, where M. Jacques Bertillon, the head of the department responsible for their preparation, was awarded two prizes and a gold medal.

Capital: a Critical Analysis of Capitalist Production. By Karl Marx. London: Swan, Sonnenschein, and Co., 1889.

It is a singular circumstance, which is not devoid of instructive significance, that Karl Marx's *Das Kapital* has only within the last few years appeared in an English form. And yet it was written by the author while he was living in England, and was compiled largely from the evidence which he had collected from English blue books. The translation before us has been the work of several hands. It is described on the title page as "translated from the third German edition by Samuel Moore and Edward Aveling," and as "edited by Frederick Engels." But Marx's daughter, Mrs. Aveling, is stated in the preface to be also responsible for checking the quotations made from English authors and parliamentary publications. Marx had himself planned an English translation, and had then abandoned the idea. But with a view to this translation he had prescribed certain changes in a set of manuscript instructions, which have been sparingly used in the volume before us. The third German edition, which is taken as the basis of the translation, was prepared after Marx's death, with the aid of notes left by him, showing where the second German edition was to be replaced by substituted passages taken from the French translation of *Das Kapital*, which he had himself revised. The English translation, therefore, may be considered to present the views of the socialist writer in their final and most mature shape; and it seems to have been carefully carried out. The peculiar technical phraseology of Marx is reproduced, and his reasoning is rendered as intelligible as the involved and subtle nature of his dialectic, added to the ordinary difficulty of the German sentence, will permit.

The Economic Basis of Protection. By Simon N. Patten. Philadelphia: J. B. Lippincott Company, 1890.

Mr. Patten has in this volume attempted to achieve the impossible, and he has naturally failed in the attempt. It is indeed amazing how much nonsense a clever man can write. We find it quite impossible even to state in decently intelligible English what Mr. Patten supposes the economic basis of protection to be. Of course, in practice, protection is forced on governments by private interests for their own advantage, and there is no question of general public advantage in the matter at all, though the interests make believe there is.

Premiers Principes de l'économique. Par Adolphe Houdard. Paris: Guillaumin et Cie., 1890.

In this volume M. Houdard endeavours to formulate the definitions and fundamental theories of the science of wealth, which, he considers, should be carefully distinguished as one branch of political economy from the other, which is sociology, or the concrete science of society. The reader is intended to acquire rapidly a knowledge of clear and precise ideas on economic subjects; and definitions are furnished of wealth, goods, man, production, value, cost of production, and money, and the theories of goods, production, acquisition, and money are examined. In an introduction the previous history of the science is traced, and in an appendix the monetary situation is discussed. M. Houdard considers that the first period of the history ends with Quesnay, with whom the modern conception begins. Previously the science had consisted of detached works on different subjects, with especial reference to money and the public finances. But, starting with the administration of State finance, it came to consider the causes and sources of wealth, and it passed from a political art to an economic science. It underwent a further change, and was given a wider scope, with Sismondi, who substituted for wealth the welfare of man; and finally it came under the influence of the German historical school. M. Houdard thinks that what is now needed is a careful distinction between the strict science, dealing with wealth, and the concrete science, dealing with social questions, into which other considerations than those of wealth enter—the former to be called economics, and the latter social science or sociology.

Untersuchungen über das Kapital. Von Otto Wittelshöfer. Tübingen: H. Laupp'schen, 1890.

This book forms an addition to the literature, already varied and abundant, on the subject of that important but perplexing term capital. The author attempts to discover its true nature and function, and, in doing so, to offer a criticism and analysis of economics. He lays great stress on the distinction between subjective and objective capital, the latter consisting of what he calls fore-products considered in themselves without regard to their ownership, the former consisting of the same fore-products when placed in their relation to their ownership. He urges that production is so far distinct from distribution, that the share a man obtains of the wealth produced in a nation may be independent of his contribution to the process of production. He holds that the *entrepreneur*, who may own some, and must manage all, subjective capital, buys fore-products and labour and sells the resulting products. As business-superintendent he may receive wages of management or remuneration of labour, but as *entrepreneur* he obtains his profit by exploiting the labourer, and bargaining for the purchase of his services at a low rate, and for the sale of the goods produced at a higher rate, and securing the difference between the two rates for himself.

The Industrial Competition of Asia. By Clermont J. Daniell. London: Kegan Paul, Trench, Trübner, and Co., 1890.

This book purports to be a fuller examination of certain points, which were brought under the notice of the recent Gold and Silver Commission, and, in particular, a statement of the manner in which a remedy proposed to the commissioners for some of the evils into which they were appointed to inquire may be most satisfactorily applied. Mr. Daniell holds the opinion that the "interests of India, and the peculiar connection between those interests and the currency system of the Empire," were comparatively neglected in the commissioners' inquiries, and he complains that "no investigation was made into the proposal for the establishment of a gold standard for India." These deficiencies he endeavours to supply, and his book is divided into two main parts in accordance with this aim. In the first eight chapters he considers the arguments advanced before the Commission by bimetallist advocates, with especial reference to the position and circumstances of India; and in the last three he enforces the desirability of "making gold legal tender in India, and exchangeable with silver money at a rate to be declared by government from time to time in conformity with the market price of the two metals." The two parts of his book are connected together; for the whole drift of the first is to show that it is the "commercial" ratio of the two metals which determines, and not, as bimetallists contend, is determined by, the "legal" ratio, and the alternative method of making gold legal tender in India to that advocated in the second part is to prescribe a fixed ratio between it and silver. Mr. Daniell's argument in the first part is largely based on a review of the evidence given before the Currency Commission. He holds to the strict economic theory of money, in accordance with which the exchanges are fixed by the commercial value of gold and silver. He contends that the supposition of a "bounty" on Indian wheat is fallacious, and that "the industrial competition of Asia" is due to causes connected with the real circumstances of production, and not with the accidental conditions of exchange. He urges that the bimetallic "par" can only be "commercial" and not "legal," and that bimetallism at a fixed ratio resolves itself, as Professor Marshall has urged, into what is really "alternate-metallism;" and he argues that, had the system been continued in its integrity after 1873 by the States of the "Latin Union," silver monometallism would, under the then conditions of supply and demand of the precious metals, have ultimately resulted. He shows that the position of India as a great silver-using country is of vital importance in the controversy; for, if it be excluded from the bimetallic convention, it may at any time expose the system to a severe, if not irresistible, strain by an "invasion of silver," and, if it be included, the novelty of the scheme will alarm and repel Asiatics accustomed from time immemorial to exchanges of the precious metals, whether as money or as bullion, at their commercial value. From this part of Mr. Daniell's book the transition is natural to the investigation of his plan for remonetising gold in India. There is, he estimates, a large stock of gold in the country, of not less than 270,000,000*l.* in value, due to the antiquity of its trade; and the stock is increasing at the rate of nearly three millions annually. There is no reason to think that the Indian people would not regard gold bullion or gold money as objects of desire, and, as a matter of fact, sovereigns of the Royal and Australian mints are in circulation in India, though they are not legal tender. The remonetisation would be the restoration of an old practice, and not the introduction of a new; and gold is now hoarded in India because it cannot be used as money, and also because it is rising in value as against silver. With the use of it as money the first reason would disappear, and the tendency to appreciation would also be arrested. Exchanges with gold-using countries would be facilitated, and the insufficiency of the Indian currency for the expanding demands of increasing trade would be satisfactorily met. And, finally, Mr. Daniell urges, the scheme of allowing a dual currency of gold and silver, exchanging with one another at their market value, is familiar to India.

VII.—*Additions to the Library.*

Additions to the Library during the Quarter ended 30*th June*, 1891, *arranged alphabetically under the following heads:*—(a) *Foreign Countries;* (b *India, Colonial and other Possessions;* (c) *United Kingdom and its several Divisions;* (d) *Authors, &c.;* (e) *Societies, &c.* (*British*); (f) *Periodicals, &c.* (*British*).

Donations.	By whom Presented.
(a) **Foreign Countries.**	
Argentine Republic—	
Anales del Departamento Nacional de Higiene. Año I. Nos. 1—4. Jan.—April, 1891. 8vo.	The Department
Datos trimestrales del Comercio exterior. Año 1891. No. 69. 8vo.	The National Department of Statistics
La Mortalidad habida en 18 Ciudades Argentinas durante 1889, con un Apendice sobre el Movimiento de la Poblacion en La Plata durante 1884-90. La. 8vo. 1891	Dr. F. Latzina
BUENOS AYRES. Boletin mensual de Estadistica Municipal. Jan.—March, 1891	The Municipal Statistical Bureau
Austria and Hungary—	
Oesterreichische Statistik—	
Band xxv. Heft 3. Statistik der Unterrichtsanstalten, 1888-89 Band xxvii. Statistik der Rechtspflege. Heft 2. Die Ergebnisse des Concursverfahrens 1887. Heft 3. Ergebnisse der Strafrechtspflege, 1887 Statistische Monatschrift. Feb.—March, 1891	The Central Statistical Commission
Statistische Uebersichten betreffend den auswärtigen Handel des Oesterreichisch-Ungarischen Zollgebiets, 1891. Heft 1. Waren-Ein-und Ausfuhr im Januar, 1891. Heft 2, Februar, 1891	The Statistical Bureau, Ministry of Commerce

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(a) **Foreign Countries**—*Contd.*	
Austria and Hungary—*Contd.*	
Hungary—	
Statistisches Jahrbuch für Ungarn, 1889. Heft 1, Politische Eintheilung und Bewegung der Bevölkerung. Heft 4, Bergbau und Hüttenwesen.... Magyarország Aruforgalma Ausztriaval es mas Orszagokkal. (Monthly Trade Returns.) Nov.—Dec., 1890....	The Royal Hungarian Statistical Bureau
Prague. Bulletin hebdomadaire de la Ville de Prague et des Communes-faubourgs. (Current numbers)....	The Statistical Bureau of Prague
Belgium—	
Annuaire Statistique de la Belgique. XXI^e année, 1890 Mouvement Commercial avec les Pays Etrangers. Feb.—April, 1891 .... Statistique Médicale de l'Armée Belge. Année 1889. Diagram. 8vo. .... Tableau Général du Commerce avec les Pays Etrangers pendant 1889. Fol.	The Bureau of General Statistics
Brussels. Bulletin hebdomadaire de Statistique Démographique et Médicale. (Current numbers)....	Dr. E. Janssens
China—	
Customs Gazette. No. 88. Oct.—Dec., 1890 .... Returns of Trade and Trade Reports for 1890. Part 1, Report on the Trade of China and Abstract of Statistics	Sir Robert Hart, G.C.M.G., Peking
Denmark—	
Statistique du Danemark, 4^e Serie, Lettre D. No. 16. Importation et Exportation, production d'eau de vie et de sucre de betteraves en 1889	The Statistical Bureau of Denmark
Nationalökonomisk Tidskrift. Ny Række. Hefte 2. 1891	The Danish Political Economy Society
Egypt. Bulletin de l'Institut Egyptien. 3^e Serie, No. 1. Année 1890. Diagrams and plates. 8vo.	The Institute
France—	
Conseil supérieur de Statistique. Bulletin No. 4. Session de 1890. 8vo.	The Ministry of Commerce
Ministère de l'Agriculture. Bulletin. X^e année, No. 1, Mars, 1891	The Ministry of Agriculture
Ministère des Finances. Bulletin de Statistique et de Législation comparée. Mar.—May, 1891	The Ministry of Finance
Ministère des Travaux Publics. Bulletin. Statistique et Législation comparée. Jan.—Mar., 1891....	The Ministry of Public Works
Statistique Générale de la France. Tomes xviii et xix. Statistique Annuelle. Années 1888 et 1889. La. 8vo.	The Bureau of General Statistics
Paris—	
Annuaire Statistique de la Ville, IX^e année, 1888. Plans. La. 8vo. .... Cartogrammes et Diagrammes relatifs à la Population Parisienne et à la frequence des principales maladies à Paris pendant 1865-87. 221 pp., 4to. 1889	Dr. J. Bertillon, Paris

Donations—Contd.

Donations.	By whom Presented.
(a) **Foreign Countries**—*Contd.*	
France—*Contd.*	
L'Economiste Français. (Current weekly numbers)	The Editor
Le Monde Economique. (,,)	,,
Polybiblion. Revue Bibliographique Universelle—	
Partie Littéraire. Mar.—May, 1891	,,
,, Technique. ,, ,,	,,
Le Rentier. Journal Financier Politique. (Current numbers)	,,
Revue Géographique Universelle. Jan.—Mar., 1891	,,
Revue d'Economie Politique—	
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British Economic Association. Economic Journal—*Contd.* Kingdom: *J. S. Nicholson.* The Austrian School and the Theory of Value: *F. Weiser.* Some Aspects of the Theory of Rent: *L. L. Price.* The Fall in Silver: *H. H. Gibbs.* The Boycott as an Element in Trade Disputes: *John Burnett.* The Difficulties of Socialism: *Rt. Hon. L. Courtney, M.P.*	The Association
Clergy Mutual Assurance Society. Report on the Mortality Experience of the Society from 1829-87, with Report on Medical History of the Society during the same period. 56 pp. Diagrams. 4to. 1891	Messrs. C. and E. Layton
Howard Association. Leaflets and Report for 1890. 8vo.	The Association
East India Association. Journal. Vol. xxiii, No. 1. 1891	"
Friendly Society of Ironfounders. Monthly Reports, Nos. 441 and 442. 1891	Sir R. W. Rawson, K.C.M.G., C.B.
Institute of Actuaries. Journal. Vol. xxix, Part 2. April, 1891. Diagrams	The Institute
Institute of Bankers. Journal. April and May, 1891	"
Institution of Civil Engineers. Minutes of Proceedings. Vol. ciii. Plates. 1891	The Institution
Institution of Mechanical Engineers. Proceedings. No. 1, 1891. Plates	"
London Chamber of Commerce. Journal. April and May, 1891	The Chamber of Commerce
Manchester Literary and Philosophical Society. Memoirs and Proceedings. Fourth series. Vol. iv, No. 3. 1890-91	The Society
Royal Agricultural Society. Journal. Third series. Vol. ii, part 1. Portrait and Illustrations. 1891	"
Royal Geographical Society. Proceedings. April—June, 1891	"
Royal Irish Academy. Transactions. Vol. xxix, part 15. 4to. 1891	The Academy
Royal Institution of Great Britain— Proceedings. Vol. xiii, Part 1, No. 84 (contains—The Search for Coal in the South of England: *W. B. Dawkins*) List of Members, &c. 1890 Additions to the Second Volume of the Catalogue of the Library. 1882-90	The Institution
Royal National Life Boat Institution. Annual Report, with Lists of the Committee, Officers and Contributors, 1891. 8vo.	"
Royal Society. Proceedings. Nos. 298 and 299. 1891	The Society
Royal United Service Institution, Monthly Journal. April—June, 1891	The Institution
Sanitary Institute. Transactions. Vol. xi. Congress at Brighton. 1890	The Institute
Society of Accountants and Auditors. The Incorporated Accountants' Journal. Vols. i and ii, 1889-91. 4to.	The Society
Society of Arts. Journal. (Current numbers) 1891	"
Surveyor's Institution. Transactions. Vol. xxiii, Nos. 9—12. 1891	The Institution.

Donations—Contd.

Donations.	By whom Presented.
(f) Periodicals, &c. (British).*	
Athenæum, The .... Current numbers	The Editor
Bankers' Magazine (London), The .... ,,	,,
British Trade Journal, The .... ,,	,,
Building Societies and Land Companies' Gazette, The .... ,,	,,
Commercial World, The........................... ,,	,,
Economist, The .... ,,	,,
Fireman, The .... ,,	,,
Insurance Post, The .... ,,	,,
,, Record, The .... ,,	,,
Investors' Monthly Manual, The .... ,,	,,
Iron and Coal Trades' Review, The .... ,,	,,
Machinery Market, The .... ,,	,,
Nature .... ,,	,,
Policy-Holder Journal, The .... ,,	,,
Public Health .... ,,	,,
Railway Press, The.................................... ,,	,,
Review, The... ,,	,,
Sanitary Record, The .... ,,	,,
Shipping World, The .... ,,	,,
Statist, The .... ,,	,,
The Economic Review. Vol. i, No. 1. Jan., 1891. 8vo....	The Publishers.
The Ironmonger, May, 1891 (extra edition containing full Report of the Iron and Steel Institute Meeting)....	C. M. Kennedy, Esq., C.B.

Purchases.

Authors, &c.—

Block (M.). Dictionnaire de l'administration française. Livraisons 1—8. 1891.

Bohm-Bawerk (E. von). Capital and Interest. Translated by W. Smart. 8vo. 1890.

Boissevain (G. M.). The Monetary Question, 1891.

Daniell (C. J.). Industrial Competition of Asia. 8vo. 1890.

Haushofer (Dr. M.). Lehr- und Handbuch der Statistik. 1882.

Horton (S. Dana). Silver in Europe, 1890.

Jeans (J. S.). Waterways and Water Transport. 8vo. 1890.

Macleod (H. D.). Theory of Credit. Parts 1 and 2 of Vol. ii. 8vo. 1890-91.

Marx (Karl). Capital. A Critical Analysis of Capitalist Production. 8vo. 1889.

Nouveau Dictionnaire d'Economie Politique. Livr. 10 et 11. 1891.

Westergaard (H.). Grundzüge der Theorie der Statistik, 1890.

Periodicals, &c.—

Almanach de Gotha, 1891.

Annual Register for 1890.

Banking Almanac, 1891.

British Almanac and Companion, 1891.

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* Foreign and Colonial Periodicals will be found under the various Countries or Possessions in which they are issued.

Purchases—Contd.

Periodicals, &c.—*Contd.*

Clergy List, 1891.
County Councils' Companion, 1891.
Directory of Directors, 1891.
Financial Reform Almanac, 1891.
Foreign Office List, 1891.
Ham's Inland Revenue Year-Book, 1891.
Howe's Directory of Metropolitan Charities, 1891.
Imperial Tariff, The, 1891.
India Office List, 1891.
Journal des Economistes (current numbers), 1891.
Metropolitan Year-Book, 1891.
Publisher's Circular (current numbers), 1891.
Stock Exchange Year-Book, 1891.
The Times' Annual, 1890.
Thom's Official Directory, 1891.
Vacher's Parliamentary Companion (current numbers). 1891.
Whitaker's Almanac, 1891.

Vol. LIV.] [Part III.

JOURNAL

OF THE ROYAL STATISTICAL SOCIETY,

SEPTEMBER, 1891.

Report *of the* Council *for the* Financial Year *ended* 31*st December*, 1890, *and for the* Sessional Year *ending* 23*rd June*, 1891, *presented at the* Fifty-Seventh Annual General Meeting *of the* Royal Statistical Society, *held at the Society's Rooms*, 9, *Adelphi Terrace, Strand, London, on the* 23*rd of June*, 1891.

The Council have the honour to submit their Fifty-seventh Annual Report.

The roll of Fellows on the 31st December last compares as follows with the average of the previous ten years:—

Particulars.	1890.	Average for the previous Ten Years.
Number of Fellows on 31st December	1,063	914
Life Members included in the above	177	149
Number lost by death, withdrawal, or default	65	57
New Fellows elected (and four resignations cancelled)	68	84

Since the 1st January last, 23 new Fellows have been elected, and the number of Fellows at present on the list is 1,058.

The Society has to lament the deaths of the following Fellows during the past year:—

		Date of Election.
	Baker, W. Mills	1879
p (5) *c d*	Balfour, T. Graham, F.R.S., M.D., F.R.C.P.	1865
	Barbour, W. B., M.P.	1877
	Baring, Thomas Charles, M.P.	1880
	Beauchamp, The Right Hon. Earl	1878
	Beckett, William, M.P.	1886
	Bedford, His Grace the Duke of, K.G., D.L.	1872

c Indicates those who had served on the Council.

d Indicates those who had been Donors to the Library.

p Indicates those who had contributed Papers, with the numbers respectively contributed.

		Date of Election.
	Bishop, George H., M.R.C.S.	1877
p (12) *c d*	Chadwick, Sir Edwin, K.C.B.	1834
d	Denman, Arthur Lemoine	1886
	Evans, John	1888
	Fowler, Sir R. N., Bart., M.P.	1877
	Hartley, Fountain John	1870
	Ingall, Samuel, F.I.A., F.R.G.S.	1869
d	Irving, John	1839
	Magheramorne, The Right Hon. Baron	1873
	Moore, Edward	1887
d	Morgan, James Henry	1883
	Murray, James Charles	1879
	Pepys, The Hon. George	1874
	Phipps, Pickering	1878
d	Pope, William Agnew	1883
	Standfield, John	1885
	Whitcher, John, Junr., F.I.A.	1876
d	Woolf, Captain M. Paul	1885

Honorary Fellows.

d	M. Anthony Beaujon (Netherlands)	1890
d	General Ibañez de Ibero (Spain)	1886
d	Mr. Henry Jordan (Queensland)	1877
	His Highness Ahmed Vefyk Pacha (Turkey)	1877
d	His Excellency A. de Vessélovsky (Russia)	1877

c Indicates those who had served on the Council.

d Indicates those who had been Donors to the Library.

p Indicates those who had contributed Papers, with the numbers respectively contributed.

The President in his Inaugural Address delivered at the beginning of the present session, referred specially to the services of Sir Edwin Chadwick, one of the original members of the Society.

The list above given also includes the name of the late President, Dr. T. Graham Balfour, F.R.S., M.D., F.R.C.P., who had been a member for over twenty-five years, and had served on the Council from 1868 to the time of his death. He fulfilled the duties of Vice-President in 1871-72, 1881-82, and 1886-87; and was President in 1888-90. He was also a liberal donor to the Library, and contributed papers and addresses to the Society in 1845, 1872, 1880, 1888, 1889. The Council are very sensible of the loss which they have sustained by the death of so valued and respected a colleague.

The financial condition of the Society continues to be satisfactory. The following table gives, for purposes of comparison, the different sources of income for the year 1890, together with the same particulars for the previous five years:—

Receipts per	1890.	1889.	1888.	1887.	1886.	1885.	Average for the Five Years previous to 1890.
	£	£	£	£	£	£	£
Dividends	73	70	73	73	73	73	72
Annual Subscriptions....	1,764	1,678	1,686	1,621	1,583	1,462	1,606
Compositions	84	126	334	126	231	63	176
Journal sales	155	229	171	188	180	188	191
Advertisements in Journal	21	12	28	21	19	26	21
	2,097	2,115	2,292	2,029	2,086	1,812	2,066
Legacy of Dr. Guy	—	—	—	—	—	250	—
	—	—	—	—	—	2,062	—

On the other hand, the expenditure has been as follows:—

Expenditure for	1890.	1889.	1888.	1887.	1886.	1885.	Average for the Five Years previous to 1890.
	£	£	£	£	£	£	£
Rent, rates, and taxes...	224	258	304	237	227	310*	267
Fire, lights, and water, repairs, furniture, &c.	93	142	69	81	72	88	90
Salaries, wages, and pension	416	405	444	419	420	392	416
Advertising, postage & delivery of Journals, stationery, & sundry printing	223	229	248	209	256	241	237
Ordinary meeting Expenses	33	27	27	39	24	23	28
Journal	567	623	711	609	735	625	661
Library	68	146	58	87	32	27	70
Miscellaneous	83	74	78	64	76	50	68
	1,707	1,904	1,939	1,745	1,842	1,756	1,837
Catalogue and Index to Library	—	—	—	280	31	247	—
Mr. F. Piercy for Portrait of Dr. Guy	—	—	22	—	—	—	—
Removing to 9, Adelphi Terrace	—	—	—	—	—	67	—
Mr. Pochin's Prize for the Newmarch Memorial Essay........	—	—	—	—	—	100	—
Jubilee Volume	—	—	—	—	233	—	—
Charter	—	—	42	110	—	—	—
General Index to Journal, part 4	—	156	—	—	—	—	—
Purchase of 400*l*. Consols	389	—	—	—	—	—	—
	2,096	2,060	2,003	2,135	2,106	2,170	—

* Of this sum about 114*l*. belongs to the expenditure of 1884.

A comparison of the principal figures at intervals of ten years in the following table, will show the progress of the Society from an early date:—

Comparison of the Condition of the Society at Intervals of Ten Years, on 31*st December.*

Year.	Number of Fellows.	Ordinary		Amount Invested.	Liabilities.	Assets over Liabilities.	Year.
		Income.	Expenditure.				
		£	£	£	£	£	
1840	416	793	800	867	275	881	1840
'50	380	703	672	867	396	827	'50
'60	374	706	788	867	126	1,677	'60
'70	403	852	839	1,136	135	1,954	'70
'80	808	1,902	1,517	2,572	214	4,614	'80
'90	1,063	2,097	1,707	2,900	333	6,589	'90

The following table gives the particulars for each year of the last decade on 31st December:—

Year.	Number of Fellows.	Ordinary Income.	Expenditure.	Amount Invested.	Liabilities.	Assets over Liabilities.	Year.
		£	£	£	£	£	
1881	807	1,649	1,400	2,869	192	4,935	1881
'82 ...	786	1,838	1,581*	3,071	203	5,240	'82
'83	860	1,778	1,635*	3,500	347	5,246	'83
'84	909	2,139	3,088*†	2,500	968	4,188	'84
'85	928	1,812	2,170*†‡	2,500	1,169	3,791	'85
'86	943	2,086	2,106*§	2,500	741	5,163	'86
'87	977	2,029	2,135*‖.	2,500	624	5,268	'87
'88	1,059	2,292	2,003‖	2,500	496	5,527	'88
'89 ...	1,060	2,115	2,060¶	2,500	328	6,242	'89
'90	1,063	2,097	2,096**	2,900	333	6,589	'90

* Affected by expenses attending the preparation of the new Catalogue and Index to the library.
† Affected by expenses incident to moving into new premises.
‡ Includes 100*l.* given by Mr. H. D. Pochin for the Newmarch Memorial Prize Essay.
§ Includes balance of cost of Jubilee volume.
‖ Affected by special outlay for the Charter.
¶ Affected by expenses attending the preparation of part 4 of the General Index to the *Journal.*
** Includes purchase of 400*l.* Consols.

The average annual receipts from the sale of the Society's *Journal* have been as follows:—

For the ten years	1841-50	£56
,,	'51-60	83
,,	'61-70	97
,,	'71-80	155
,,	'81-90	184

The income of the Society in 1890 was of the ordinary character. On comparing the figures for 1890 with the average of those for the previous five years, it will be noticed that the receipts from Annual Subscriptions are materially above—while the receipts under the other heads (with the exception of dividends) are below the average.

The expenditure during 1890 was of a normal character, and below the average outlays for the past five years.

The cordial thanks of the Council have been tendered, on behalf of the Society, to the Auditors for their honorary services in auditing the Treasurer's accounts for the past year.

The Royal Literary Fund have ceased to be the Society's tenants since the 25th of March last; part of the premises are still however sub-let to the Institute of Chemistry, and the newly founded British Economic Association have also since Lady-day rented one of the Society's rooms.

Permission to hold the Ordinary Meetings of the Society in the Theatre of the Museum of Practical Geology, in Jermyn Street, has been continued through the courtesy of the Education Department, and the Council have again conveyed to the Lords of the Committee of Council on Education their thanks for the accommodation thus afforded.

The Society re-assembled in November, and the papers read and the members elected at each of the monthly meetings have been as follows:—

Session 1890-91.

First Ordinary Meeting, Tuesday, 18*th November*, 1890.

The President, Dr. Frederic J. Mouat, F.R.C.S., LL.D., in the Chair.

The following were elected Fellows:—

Marcus N. Adler, M.A., F.I.A.
Henry Andrews.
Edward William Browne.
Charles Allen Fox, M.R.C.S.
Joseph Castle Hall.
Stephen H. M. Killik.
George Manwaring.
Bonner H. Mumby, M.D.
John Wyatt Peters.
Frederick Richards.
Sir William Roberts, M.D., F.R.S.
John Venn, D.Sc., F.R.S.
William Henry Walkley.

The President delivered an Opening Address.

A cordial vote of thanks to the President for his Address was moved by Sir Rawson W. Rawson, and seconded by Lord Thring.

Second Ordinary Meeting, Tuesday, 16th December, 1890.

The President in the Chair.

The following were elected Fellows:—

William Whyte Bain.
Eric Mackay Carter, A.I.A., F.C.A.
Charles James Drummond.
Ferdinand M. Huth.
James Musgrave.
Frederick William Rutherford.
The Right Hon. Lord Thring, K.C.B.

The Right Hon. Sir Charles W. Dilke read a Paper entitled "Statistics of the Defence Expenditure of the Chief Military and "Naval Powers."

In the discussion that followed the undermentioned took part:—Mr. Spencer Wilkinson, Colonel J. F. Maurice, Captain E. S. May, The Right Hon. G. Shaw Lefevre, M.P., Colonel A. E. W. Goldsmid. and the President.

Third Ordinary Meeting, Tuesday, 20th January, 1891.

The President in the Chair.

The following were elected Fellows:—

John Burns MacBrayne.
Thomas Maidment.
Henry Potter.
John Holt Schooling.

Inspector-General Lawson's Paper on "The Operation of the "Contagious Diseases Acts among the Troops in the United "Kingdom and Men of the Royal Navy on the Home Station, "from their Introduction in 1864 to their ultimate Repeal in "1884," was read by the President on behalf of the Author, who, though still ill, attended the Meeting in order to give any information that might be asked for.

In the discussion that followed the undermentioned took part:—Dr. J. Birkbeck Nevins, Mr. E. L. Walford, Mr. Charles A. Fox, M.R.C.S., Mr. Stephen Bourne, Dr. Buxton Shillitoe, Sir R. W. Rawson, Mr. John B. Martin, and the President.

Fourth Ordinary Meeting, Tuesday, 17th February, 1891.

The President in the Chair.

The following were elected Fellows:—

William Penn Lewis.	Henry Richard Pope.

Henry Joseph Wilson, M.P.

Dr. Arthur Newsholme read a Paper on "The Vital Statistics "of Peabody Buildings and other Artisans' and Labourers' Block "Dwellings."

In the discussion that followed the undermentioned took part:—Mr. N. A. Humphreys, Sir R. W. Rawson, Mr. F. H. Janson, Mr. M. N. Adler, Mr. F. Hendriks, Mr. R. E. Farrant, Mr. A. H. Bailey, Mr. D. F. Schloss, Dr. S. R. Lovett, Mr. F. Crouch, Dr. John F. J. Sykes, Mr. G. G. Chisholm, Dr. G. B. Longstaff, and Mr. J. B. Martin.

Fifth Ordinary Meeting, Tuesday, 17th March, 1891.

The President in the Chair.

The following were elected Fellows:—

J. C. Farquharson.	S. H. Ridge, B.A., F.R.G.S., F.R.Hist.S.
R. M. Johnston.	James Spence.

Shirley Forster Murphy, M.R.C.S.

The President, Dr. Frederic J. Mouat, read a Paper on "Prison "Ethics and Prison Labour."

In the discussion that followed the undermentioned took part:—Mr. F. S. Powell, M.P., Captain A. D. H. Helby, Mr. F. Hendriks, Sir R. W. Rawson, Major P. G. Craigie, Mr. F. B. Garnett, and Mr. Rowland Hamilton.

Sixth Ordinary Meeting, Tuesday, 21st April, 1891.

The President in the Chair.

The undermentioned were elected Fellows:—

Rev. Joseph Williams Ashman, M.A., M.D.	George Johnson.
	Sydney E. Preston.
Sir Joseph Dalton Hooker, K.C.S.I.	James Parker Smith, M.P.

William Terrey.

Dr. John Charles Steele (Superintendent of Guy's Hospital), read a Paper on "The Charitable Aspects of Medical Relief."

In the discussion which followed the undermentioned took part:—Sir Joseph Fayrer, Mr. C. S. Loch, Mr. A. C. Scovell, and Dr. Mouat.

Seventh Ordinary Meeting, Tuesday, 26th May, 1891.

The President in the Chair.

The undermentioned were elected Fellows:—

Henry W. Cannon.	Charles Edward Crawley.

Dr. John Venn, D.Sc., F.R.S., read a Paper on "The Nature "and Uses of Averages."

Mr. F. Hendriks, Mr. Francis Galton, and Professor Edgeworth took part in the discussion which followed.

Eighth Ordinary Meeting, Tuesday, 16th June, 1891.

The President in the Chair.

The following were elected Fellows:—

Right Hon. Lord Addington.	Arthur J. Butler.
	Robertson Lawson.

Mr. Noel A. Humphreys read a Paper on the "Results of the "Recent Census and Estimates of Population in the largest "English Towns."

In the discussion that followed, the undermentioned took part:—Mr. R. Price-Williams, Dr. G. B. Longstaff, Mr. E. L. Walford, Mr. Benjamin Newbatt, Sir R. W. Rawson, Mr. A. H. Bailey, Mr. M. N. Adler, Mr. S. Bourne, and Mr. R. Hamilton.

For some years past an allowance of 50*l*. annually has been sanctioned for the purchase and binding of valuable books. As this had become manifestly insufficient, and a large number of books remained unbound, whilst the binding of others had become injured from the effects of time and usage, it was recently decided, after careful inquiry, that a sum not exceeding 50*l*. a year should be assigned to binding and maintaining the books generally in good order.

At the same time the valuable file of the "Times" newspaper which is the property of the Society demanded and received special attention. The file for twenty-two years had not been bound at all, and a large number of volumes were in so dilapidated a state as to be unfit for consultation. After careful calculation, a sum of 100*l*.

was sanctioned to put the whole of this deeply interesting series, which is very nearly complete from its origin, in good working order, and it is believed that the increased facility of consultation thus afforded, will be a source of attraction to the greater use of the Library, which scarcely at present commands the attention it merits.

At the same time measures have been taken for the increased purchase of new works of contemporaneous value in the branches, direct and collateral, of the sciences cultivated by the Society.

At the commencement of the Session a question arose as to the procedure of the Society, and the duties of the salaried staff, and this led to an investigation of the matter by the President, by desire of the executive committee. Consequent on his report, a special committee was appointed in January last to inquire into the whole management of the Society, which recommended a reorganisation of the salaried staff, and a strict definition of the duties and responsibilities of each of its members. Mr. Whittall, the late assistant secretary, resigned in February, on account of sickness, which prevented his performance of the duties of his office, and advantage was taken of this to carry out the scheme of reorganisation referred to above. A pension of 100*l.* per annum was granted to Mr. Whittall on his retirement. To the office of Assistant Secretary was added that of Sub-editor of the *Journal*, and the Chief Clerk was appointed Librarian also, with the reward for his long and efficient services of an increase to his salary. The Junior Clerk, Mr. Bowes, resigned in April.

To the above offices were appointed Mr. Reginald H. Hooker, B.A., and Mr. Mackenzie, and the successor to the Junior Clerk was Mr. F. M. Hornsby, who had been trained in a public office, and had been passed by the Civil Service Commission.

In the Annual Report for 1883-84, the Council expressed an earnest hope that the increasing recognition of the importance of statistical research might find its natural expression in a corresponding increase in the number of Fellows of the Society, and they strongly urged the importance of using every effort to increase both the strength and the efficiency of the Society.

From that time a circular letter embodying those views, and indicating the direction and manner in which they can best be carried into effect, was circulated to all newly elected Fellows. This circular was embodied in the Report for 1889, in order to make it known to the whole body of Fellows.

In 1890 special attention was again given to the matter, and in the present year it has occupied much of the attention of your Executive and Council.

The points most urgently demanding consideration, were to ensure a better supply of papers of interest and value for the future, and to keep the Society more in touch with the institutions and persons devoted to cognate pursuits.

For the former purpose, the Council recommend the founding of a gold medal, to be called the "Guy Medal of the Royal "Statistical Society," in honour of the greatest benefactor the Society has ever had, who was at the same time eminent as a statistician, and to mark their desire to advance the interests of statistical science as well as those of the Society which is universally admitted to be its chief exponent.

The change in the salaried agency of the Society by the appointment of Mr. R. H. Hooker, a distinguished graduate of Trinity College, Cambridge, and a Bachelor of Science of Paris, to the offices of Assistant-Secretary and Sub-Editor of the *Journal*, has enabled the Society to secure a more strictly scientific agency in advancing its work than has heretofore been available.

The meeting of the British Association in 1890 was held at Leeds, where the Society was as usual well represented in Section F (Economic Science and Statistics). Papers were read by the following Fellows of the Society:—Professor A. Marshall, M.A. (President of the Section), Professor C. F. Bastable, M.A., Mr. A. Berry, M.A., Mr. J. Bonar, M.A., LL.D., Mr. E. Cannan, M.A., Professor F. Y. Edgeworth, M.A., D.C.L., Mr. W. Hooper, Mr. L. L. Price, M.A., Mr. H. Llewellyn Smith, B.A., B.Sc.

A copy of the constitution of the permanent governing body of the Imperial Institute has been received, according to which the Council of this Society has the nomination of one member of that body, and it was resolved that the President for the time being of this Society should be the member nominated.

The International Congress of Hygiene and Demography will be held in London in August, 1891, under the Presidency of H.R.H. the Prince of Wales, and members who are interested in these important subjects are invited to attend the Congress and share in its work. The Demographic section will be presided over by Mr. Francis Galton, F.R.S., a member of this Society. The Council have appointed Mr. F. Hendriks and Mr. Rowland Hamilton delegates of the Society to the Congress, and the President of our Society, Dr. F. J. Mouat, has accepted nomination as a vice-president.

The fourth biennial meeting of the International Statistical

Institute, founded in London in 1885, at the Jubilee meeting of the Royal Statistical Society, will be held at Vienna on the 28th September next, under the Presidency of Sir Rawson W. Rawson, K.C.M.G., C.B., Past President of this Society.

The following list of Fellows proposed as President, Council, and Officers of the Society for the Session 1891-92 is submitted for the consideration of the meeting:—

Council and Officers for 1891-92.

PRESIDENT.

FREDERIC JOHN MOUAT, M.D., LL.D.

COUNCIL.

Arthur H. Bailey, F.I.A.
Alfred Edmund Bateman.
*Henry R. Beeton.
Charles Booth.
Stephen Bourne.
Edward H. Carbutt, M.I.M.E., J.P.
Hyde Clarke.
Major Patrick George Craigie.
Rev. Wm. Cunningham, M.A., D.D.
Prof. F. Y. Edgeworth, M.A., D.C.L.
Thomas Henry Elliott.
Frederick Brooksbank Garnett, C.B.
Frederick Hendriks, F.I.A.
*Noel A. Humphreys.
Frederick Halsey Janson, F.L.S.
J. Stephen Jeans.
*John Scott Keltie, F.R.G.S.
Charles Malcolm Kennedy, C.B.
*Robert Lawson, LL.D.
George B. Longstaff, M.A., M.B.
John Biddulph Martin, M.A.
Richard Biddulph Martin, M.A.
Francis G. P. Neison, F.I.A.
William Ogle, M.A., M.D., F.R.C.P.
R. H. Inglis Palgrave, J.P., F.R.S.
Henry Davis Pochin, J.P.
Francis Sharp Powell, M.P.
*John Rae.
*Ernest G. Ravenstein, F.R.G.S.
Edward Seaton, M.D., F.R.C.P.

Those marked * are new Members of Council.

TREASURER.

Richard Biddulph Martin, M.A.

HONORARY SECRETARIES.

John Biddulph Martin, M.A. | Alfred Edmund Bateman.
Major Patrick George Craigie.

FOREIGN HONORARY SECRETARY.

John Biddulph Martin, M.A.

The abstract of receipts and payments, and the balance sheet of assets and liabilities on 31st December, 1890, are subjoined, together with the report of the Auditors on the accounts for the year 1890:—

(I.)—ABSTRACT *of* RECEIPTS *and* PAYMENTS *for the* YEAR *ending* 31*st* DECEMBER, 1890.

RECEIPTS.				£	s.	d.
Balance in Bank, 31st December, 1889 ...	£262	5	4			
Balance of Petty Cash.	27	8	3			
,, Postage Account	1	14	2	291	7	9
Dividends on 2,900*l.* Consols Stock				72	8	–
Subscriptions received:—						
37 Arrears	£77	14	–			
777 for the year 1890	1,631	14	–			
26 in Advance	54	12	–	1,764	–	–
840						
4 Compositions...........................				84	–	–
Journal Sales				155	1	6
Advertisements in Journal				21	5	3
Total...............				£2,388	2	6

PAYMENTS				£	s.	d.
Rent	£316	17	6			
Less sublet	155	–	–	161	17	6
Rates and Taxes				62	–	1
Fire, Lights, and Water				44	4	10
Repairs, Furniture, &c.				49	5	6
Salaries and Wages......				416	6	8
Journal, Printing	£505	5	9			
,, Annual Index	5	5	–			
,, Shorthand Reporters	18	18	–			
,, Literary Services	37	10	6	566	19	3
Ordinary Meeting Expenses				32	15	8
Advertising				57	1	1
Postage and delivery of Journals...				88	10	11
Stationery and Sundry Printing ...				76	14	5
Library				68	9	11
Howard Medal				2	12	–
Incidental Expenses				79	16	–
				1,706	13	10
Purchase of 400*l.* Consols				389	–	6
				2,095	14	4
Balance per Bank Book..................	£256	17	6			
Balance of Petty Cash	30	17	3			
,, Postage ...	4	13	5	292	8	2
Total				£2,388	2	6

(Signed) "A. H. BAILEY,
"J. O. CHADWICK, F.C.A., } *Auditors.*"
"12*th February*, 1891. "SAM. DYER NIX, F.C.A.,

(II.)—BALANCE SHEET *of* ASSETS *and* LIABILITIES, *on* 31*st* DECEMBER, 1890.

LIABILITIES.

	£	s.	d.	£	s.	d.
arrison and Sons—						
For Journal	166	17	6			
,, Miscellaneous Printing	10	17	9			
. and E. Layton, for Stationery	9	7	8			
treet Bros., for Advertisements	13	19	6			
r. W. A. Casson, for Index to Journal	5	5	–			
axes to April, 1891	34	17	2			
iscellaneous (as per List)	36	16	4			
				278	–	11
6 Annual Subscriptions received in advance				54	12	–
				332	12	11
alance in favour of the Society*				6,588	13	8
				£6,921	6	7

ASSETS.

		£	s.	d.
Cash Balances		292	8	2
2,900*l.* Consols ... cost		2,760	14	5
Property: (Estimated Value of)—				
Books in Library	£1,500			
Journals in Stock	1,500			
Pictures, Furniture, and Fixtures	500			
		3,500	–	–
Lease of Premises (cost)	500			
Less amount written off for time expired (seven years)	245			
		255	–	–
Arrears of Subscriptions recoverable (say)		88	4	–
Sundry Debtors		25	–	–
		£6,921	6	7

(Signed) "A. H. BAILEY,
"J. O. CHADWICK, F.C.A.,
"SAM. DYER NIX, F.C.A., } *Auditors.*"

"12*th February*, 1891.

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* This balance is exclusive of the present value of the absolute Reversionary Interest queathed to the Society by the late Dr. Guy.

(III.)—BUILDING FUND (ESTABLISHED 10*th July*, 1873), BALANCE SHEET, *on* 31*st* DECEMBER, 1890.

LIABILITIES.

	£	s.	d.
mount of Fund Invested from last Account	226	16	9
ividends received during 1890	7	8	9
	£234	5	6

ASSETS.

	Stock.			Cost. £	s.	d.
Invested as per last Account in Metropolitan Consolidated 3½ per Cent. Stock, in the name of the Treasurer, Richard B. Martin, Esq.—	£216	19	–	226	16	9
Purchased during the year	6	11	9	7	8	9
	£223	10	9	£234	5	6

(Signed) "A. H. BAILEY,
"J. O. CHADWICK, F.C.A.,
"SAM. DYER NIX, F.C.A., } *Auditors.*"

"12*th February*, 1891.

"REPORT OF THE AUDITORS FOR 1890.

"*The Auditors appointed to examine the Treasurer's Accounts of the Society for the Year* 1890,

"REPORT:—

"*That they have compared the Entries in the Books with the several Vouchers for the same, from the* 1*st January to the* 31*st December*, 1890, *and find them correct, showing the Receipts* (*including a Balance of* 291*l.* 7*s.* 9*d., from* 1889) *to have been* 2,388*l.* 2*s.* 6*d., and the Payments* (*including the Purchase of* 400*l. Consols*) 2,095*l.* 14*s.* 4*d., leaving a Balance in favour of the Society of* 292*l.* 8*s.* 2*d. at the* 31*st December*, 1890.

"*They have also had laid before them an Estimate of the Assets and Liabilities of the Society at the same date, the former amounting to* 6,921*l.* 6*s.* 7*d., and the latter to* 332*l.* 12*s.* 11*d., leaving a Balance in favour of the Society of* 6,588*l.* 13*s.* 8*d., exclusive of the present value of the absolute Reversionary Interest bequeathed to the Society by the late Dr. Guy.*

"*The amount standing to the credit of the Building Fund at the end of the year* 1890, *was* 234*l.* 5*s.* 6*d., invested in* 223*l.* 10*s.* 9*d. Metropolitan Three and a Half per Cent. Stock, in the name of the Treasurer, R. B. Martin, Esq.*

"*They have verified the Investments of the Society's General Funds and Building Fund, and also the Banker's Balance, all which were found correct.*

"*They further find that at the end of the year* 1889 *the number of Fellows on the list was* 1,060, *which number was diminished in the course of the year to the extent of* 65, *by Deaths, Resignations, and Defaulters, and that* 66 *new Fellows were elected, and the Resignations of* 2 *Fellows were cancelled, leaving on the list on the* 31*st December*, 1890, *one thousand and sixty-three* (1,063) *Fellows of the Society.*

(Signed) "A. H. BAILEY,
"J. O. CHADWICK, F.C.A.,
"SAM. DYER NIX, F.C.A., } *Auditors.*"

"12*th February*, 1891.

PROCEEDINGS *of the* FIFTY-SEVENTH ANNUAL GENERAL MEETING.

The PRESIDENT, DR. F. J. MOUAT, *in the Chair.*

MR. J. B. MARTIN (Hon. Secretary) read the circular convening the meeting.

The minutes of the last ordinary meeting were read and confirmed.

The Report of the Council and balance sheet were taken as read.

The PRESIDENT reported that Sir Rawson Rawson and Mr. James Spence had consented to act as Scrutineers of the ballot.

The PRESIDENT: It is now my duty to move that the Report be received and adopted. Fortunately there is little that requires to be said on an occasion of this kind, for the Report itself contains both in a condensed and extended form all the facts regarding our history at the present time, that are necessary to throw light upon our proceedings. For example, we have to show that the Society is not diminishing in public confidence, and that it has the means of carrying on its work with efficiency. You will find in the first portion of the Report that the number of Fellows on the 31st December, 1890, was 1,063, which was considerably in excess of the average of the previous ten years; and if you look at the other table contained in the fourth page of the Report, you will find the number for each of the years during the present decade and for the tenth year of each of the former decades. They all show a gradual and progressive increase, and that we are now in really a better position than we have been before. The number of Fellows on the 31st December last was 1,063, against 914, the average of the previous ten years. The number of life members included in the above was 177, against 149. The number lost by death, withdrawal, or default last year, I regret to say, was in excess of that of the previous decade. They were 65 in number, against 57. I am sorry to be obliged to state that the number of defaulters has also considerably increased; but, after all, when you calculate them upon the large number of members in the Society, it really reflects very little more than the ordinary changes that take place in an old institution of this kind. The newly elected Fellows were 68, against 84. There has been a falling off here, but the new elections were in excess of the withdrawals, so that I think in that respect we stand in a fairly good position. Since the 1st January this year 23 new Fellows have been elected, so that the actual number of Fellows at the present moment is 1,058.

The Society has to lament the deaths of a considerable number of Fellows, among them Sir Edwin Chadwick, who died during the year. His death has been noticed before, as has also the death of Dr. Graham Balfour, our last President, about whom there will be more to be said on another occasion. The other members who died had taken no particular personal interest in the Society, and although many of them were men of great distinction in other walks of life, we do not record the circumstances connected with them, when they are not in direct relation to their participation in the work of our Society. Our loss amongst the Honorary Fellows has also been great. M. Anthony Beaujon, of the Netherlands; General Ibañez de Ibero, of Spain; Mr. Henry Jordan, of Queensland; His Highness Ahmed Vefyk Pacha, of Turkey; and His Excellency A. de Vessélovsky, of Russia. They were all distinguished men in their own countries, and largely devoted to the study of statistics. Although they held no direct communication with us, their personal influence in making known our work abroad, was probably of considerable importance. The first is M. Anthony Beaujon, of the Netherlands, who was a distinguished statistician. The next is a gentleman well known to Mr. Hyde Clarke, who is present, His Highness Ahmed Vefyk Pacha, with regard to whom there was a biographical notice in the "Athenæum" the other day. He was a very remarkable man, was largely given to statistics, and is chiefly known in Europe on account of his successful study of them and from his being connected with this Society and the Statistical Society of Paris. The last is His Excellency A. de Vessélovsky. Until very recently he was the editor and founder of the "Economiste Russe," a valuable journal, and one which was calculated to throw a very large amount of information upon an empire of which we know little statistically. The obituary notice of him which appeared in St. Petersburgh, simply said that he died in harness, and in the preparation of the issue of the journal in which his death is recorded. We shall probably have more information regarding him hereafter; and I think it would be desirable, although it has not been the practice heretofore, to place on our records some memorandum or memorial regarding distinguished men who have reflected honour upon us.

The next portion of the report refers to our financial circumstances; and here also we have an excellent record. I find in the table on p. 411 that the receipts or income of the Society were 2,097*l*., against 2,066*l*., which was the average of the previous five years. These are made up by dividends, subscriptions, compositions, *Journal* sales, and advertisements in the *Journal*. The legacy of Dr. Guy is of course held in abeyance. That is a valuable asset, but I trust it will be long deferred before it comes to us, inasmuch as it depends upon the life of his widow. On the other hand the expenditure, which has been well within our income, amounts to 1,707*l*.

The cordial thanks of the Council were tendered on behalf of the Society to the auditors for their honorary services in auditing the treasurer's accounts for the past year. The Royal Literary Fund have ceased to be the Society's tenants since the 24th March last; part of the premises are still however sub-let to the Institute of Chemistry, and the newly founded British Economic Association have also since Lady-day rented one of the Society's rooms. We have not sought a new tenant for the room which has been vacated by the Royal Literary Fund, because we greatly require the space for our own purposes, viz., for the proper location of our library, and for the placing of the books which are more constantly referred to, where they can be got at at once. So great has been the pressure on the space for our books, that they have been put into positions down below which are not adequately ventilated, and in which they must necessarily deteriorate. Therefore, we thought it would be economy on our part to utilise our own space instead of re-letting it for a small sum which would be of no practical use to us, in the conduct of our work. Permission to hold the Ordinary Meetings of the Society in the Theatre of the Museum of Practical Geology, in Jermyn Street, has been continued through the courtesy of the Educational Department, and the Council have again conveyed to the Lords of the Committee of Council on Education, their thanks for the accommodation thus afforded.

The report then relates the business that was done at each of the ordinary meetings, which has been of fair average quality: and I think we have no reason to believe that we have not, as far as it has been in our power, fulfilled the mission entrusted to us. It has now, however, become a chronic subject of remark at all these annual meetings, that we want a great deal more support than we get from the Fellows of the Society. Without their aid we can do little; with their aid we can do much.

During the year we have made important changes in the *personnel* of the Society. We had no difficulty in the re-organisation. We have appointed Mr. Reginald H. Hooker as our Assistant Secretary, and Mr. F. M. Hornsby, who has been trained in a public office, and has been passed by the Civil Service Commissioners, has been appointed Junior Clerk. The report then goes on to state that "the Council expressed an earnest hope that the increasing recognition of the importance of statistical research might find its natural expression in a corresponding increase in the number of Fellows of the Society, and they strongly urged the importance of using every effort to increase both the strength and the efficiency of the Society." I need scarcely tell you it was with this view that the Council have worked during the past year in the changes made. The points most urgently demanding consideration were to ensure a better supply of papers of interest and value for the future, and to keep the Society more in touch with the institutions and persons devoted to cognate pursuits. For the former purpose, the Council recommend the founding of a gold medal, to be called the "Guy Medal of the Royal Statistical Society," in honour of the greatest benefactor the Society has ever had, who was at the same time eminent as a statistician, and to mark their desire to advance the interests of statistical science as well as those of the Society, which is universally admitted to be its chief exponent. It is rather late in the day, in fact it would be unnecessary now to ask your sanction to found a medal as a novelty, because all the great Societies have in turn adopted some method of reward to encourage research, by putting their stamp of approval upon it, generally in the shape of a medal. The chief object, however, is to encourage the younger members to come forward. The ancients, of course, would not contend for prizes of this kind, but they would be an object of ambition to our younger Fellows, now that economic science and statistics are more taught in our universities and colleges than they were previously, and I think we may hope in the future to find that work of great merit may thus be produced, partly by the stimulus of the reward which you are about to offer for it.

The International Congress of Hygiene and Demography will be held in August, and the Council recommend the Fellows of this Society to take an interest in it. The Fourth Biennial Meeting of the International Statistical Institute, founded in London in 1885, will be held at Vienna on the 28th September next, under the presidency of our respected former President, Sir Rawson Rawson, who has been president of that Institution from its origin to the present time. There is only one other little matter connected with our expenditure, which I may bring under your notice, namely, that we have heretofore been paying for the preparation of the annual indexes and for literary services, which I hope in future will be rendered by our Assistant Secretary; not that it was not well done, for it was very well done, but there was no reason why it should not form part of the ordinary duties of the Assistant Secretary, who has kindly undertaken to perform them. The accounts are found by the Auditors to be correct and well kept.

I now beg to move that the Report of the Council, with an Abstract of Receipts and Payments, and the Balance Sheet of the Assets and Liabilities, and the Report of the Auditors for the year 1890, be adopted, entered on the minutes, and printed in the *Journal*.

Mr. F. Hendriks: I should like to be allowed to second this motion, and I do so most cordially. The Report is so extensive, and its details have been so lucidly explained by our President, that really there is nothing left for me to enlarge upon. There is one point, however, which has not been referred to, but which is on the record of our proceedings, namely, the agreeable fact that at all our meetings our President has been able to preside in person. I think that has been unprecedented in our history. It is a great advantage to have a President, who gives so active a co-operation in the Society, to preside at every one of its meetings. I have great pleasure in seconding the motion.

The motion for the adoption of the Report was carried unanimously.

Sir Rawson Rawson: It is now my duty to report that the officers and members of the Council have been unanimously elected.

The President: The result of the election is a proof of your confidence in the Council and those whom you wish to direct your affairs. I beg to move a vote of thanks to the scrutineers for the work which they have performed for us on this occasion.

Carried unanimously.

The President: I now have to ask you to adopt certain alterations in the library rules, recommended by the Council.

Mr. J. B. Martin: I beg to move (*a*) That Rule 3, "Fellows are not to have more than two works at a time, nor keep any books longer than one month," be altered to read as follows: "Rule 3. Fellows are not to keep any books longer than one month. Any Fellow detaining a book for more than a month shall not be permitted to take another from the library until the book detained shall have been returned." (*b*) Rule 5. After "Assistant Secretary" add "or Librarian." (*c*) Rule 6. After "Any Fellow damaging" add "or losing." (*d*) Rule 8. For "Secretary" substitute "Librarian."

The alterations were agreed to.

Mr. Noble: I have great pleasure in moving a cordial vote of thanks to the President, the Council and officers for their services during the past year, and to the Chairman for presiding on the present occasion. The work of all those gentlemen is before you, I am sure it speaks for itself, and that there is no need for further recommendation from me.

Mr. A. D. McKay seconded the motion, which was agreed to.

The President: It remains only for me to thank you on my own behalf and that of my colleagues. We have done our best to advance your interests, as we shall continue to do during the approaching session, at the conclusion of which I hope we shall be able to give as good an account of ourselves as we have been able to do now. Again I ask you individually and collectively to see if you cannot help us in procuring more papers for our meetings and for publication in the *Journal*, and in securing a larger attendance at our meetings, of gentlemen who will take part in our proceedings.

Mr. Charles Booth: There is one subject I should like to bring before you. I think the value of the discussions at our meetings might perhaps be enhanced if there were a certainty that the paper could be obtained beforehand by those who wish to join in the discussion. I know in many cases the papers can be obtained, but there is no certainty. If it could be relied upon that those who wish to take part in the discussion could get a sight of the paper long enough beforehand to make up their minds on the points raised in it, I think it would add very much to the value of the discussions.

Sir Rawson Rawson: I think our late assistant secretary had instructions if any gentleman known to the Council took an interest in a particular subject, he could apply for a copy of the paper. Our President has referred to the objections that have been raised, certainly by more than one author of a paper, to his paper being put into the hands of anybody before it was read. There cannot be a hard and fast rule in the matter. I think our friend Mr. Booth, who is not at all likely to transgress in any matter of discretion or confidence, would find very little difficulty in obtaining permission from the author to get a copy of any paper.

The PRESIDENT: I can assure Mr. Booth that a note will be made of his recommendation, with a view to comply with it as far as possible.

Mr. BOOTH: I meant to suggest that the paper, if possible, should be got into type soon enough.

Sir RAWSON RAWSON: That depends upon the author. Our great difficulty has been to get the papers in time, and it has sometimes been difficult to get them in time even to refer them to the referees for report. We are dependent entirely upon the goodwill of the authors of the papers. Many of them really have a practical difficulty in getting them ready, and many of them I am sorry to say do not exert themselves as they might do, to ensure our having them in time. I am glad to have the opportunity of saying how much we owe to our President for his exertions during the past year, not only the Society at large, but the Council, for the attention which he has given to our business, and the way in which he has endeavoured to improve our methods. He knows the difficulty of getting papers at all. Sometimes at the last moment the author says, "I am sorry I have been called away, and I have not been able to finish my paper," and the Council has great difficulty in supplying a paper for the occasion. Our President has made great efforts during the past year to secure papers, and we hope to encourage our members and the public to take an interest in our work, and supply us with papers so that we may have two or three on hand, and then we shall never be at a loss. Perhaps we do not get the paper until a week before the meeting, and then it has to be printed, and sometimes two or three days have to be allowed for setting up the type. Those are the practical difficulties in the way. I think we all appreciate the very great advantage of having the opportunity of looking over the papers beforehand, which leads very much to the increased interest and utility of our discussions.

Mr. JAMES SPENCE: I think this matter might be put in the shape of a recommendation. It strikes me that the interest would be doubled if those who felt inclined to speak had time to digest the matter and to prepare what they have to say in opposition to it. If I were writing a paper I should rather consider it an advantage to give time to other gentlemen to reply to its arguments, because, after all, we are not writing on peculiarly delicate subjects, but on matters of public interest, and we are all in quest of the self-same thing—the truth and accuracy of our views on statistical questions. I really feel very strongly that something should be done in the matter, and that gentlemen writing papers should be strongly recommended to supply them in sufficient time, and give permission to their being perused by those who wish to join in the discussion.

The Proceedings then terminated.

On the NATURE *and* USES *of* AVERAGES.

By DR. JOHN VENN, D.Sc., F.R.S.

[Read before the Royal Statistical Society, 26th May, 1891.
The President, DR. F. J. MOUAT, M.D., F.R.C.S., in the Chair.]

OUR President has kindly asked me to make some remarks this evening upon the "Nature and Uses of Averages." I feel that I must choose the ground warily, and speak with some caution upon this subject and in this place. On the one hand I am addressing a gathering most of whom are far better acquainted than myself with the sort of materials to which averages are commonly applied, so that the cautions which might be appropriate to a lay assembly would become an impertinence here. On the other hand, what may be called the higher theory of the subject—the full justification, for example, of the doctrine and method of least squares—is a subject which the profoundest mathematicians of the last hundred years have made so completely their own, that it would be an impertinence for any one who is not a first rate mathematician to meddle with the subject.

There is, however, an intermediate ground which, though not extensive, is apt to be rather neglected. I refer here to what may be called the *logical* account of the nature and uses of averages; the answers, that is, to such questions as these: Why do we resort to averages at all? What do we gain and lose respectively by doing so? What different kinds of average are there, and how and why does one such kind become more appropriate than another? Such questions as these, which might be multiplied further, are apt to be overlooked by the practical man, owing partly to his long and early familiarity with one particular kind of average; and though they are by no means left unregarded by the mathematician, the treatment they receive at his hands needs a good deal of simplification and selection in order to make it readily intelligible.[1]

What, then, is an average, in the most general sense of the term? What it seems to presuppose is always this: that we have a plurality of values or magnitudes of some kind set before us which are, regarded in themselves, actual concrete matters of fact. We put these aside and substitute for them an intermediate value of our own construction, which is, by contrast with the former, fictitious and artificial. This is the most general account we can give of the matter, and will presumably cover every kind of average which can be taken into account. But it at once raises the question, How can a single introduction of our own, and that a fictitious one, possibly take the place of the many values which were actually given to us? And the answer surely is, that it can *not* possibly do so; the one thing cannot take the place of the other for purposes in general, but only for this or that specific purpose. And, what is more, the object proposed in such substitution must be clearly defined, and, in consequence, the suitable kind of average must be selected for the purpose in view. This seems so obvious when stated in words, that nothing but extreme familiarity with the subject-matter, and the satisfaction which comes of long and successful practice within definite limits, could have brought us to overlook it. But it will be useful to work out the contrast in detail by considering successively the principal purposes which we may have in view in resorting to one of these averages. These are prominently three:—

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[1] The mathematical justification of almost every kind of average which can be proposed, will be found discussed in Mr. F. Y. Edgeworth's paper in the "Cam-"bridge Philosophical Transactions" (vol. xiv, part ii).

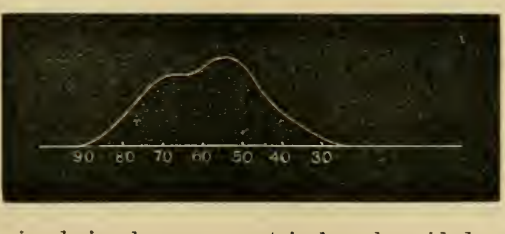
I. The first of these purposes, I apprehend, is merely that of general non-quantitative comparison. We have a number of groups of things before us, and we want to compare them one with another; to put the groups in their order, for instance, at any given time, or to say, when comparing them at different times, which of them are increasing and which are diminishing.

For this, which may be called the merely *comparative* purpose, I apprehend that almost any kind of average will answer our end equally well. To take two that are most familiar to the statistician —the *mean*, or arithmetical average, and the *median*, or middlemost value—the occasional employment of the latter is sometimes defended on the ground of its general close agreement with the former. But such agreement does not seem necessary. For purposes of general comparison any kind of intermediate value would answer the purpose, provided this be deduced according to the same rule in each case. Begin with a simple physical example or analogy. Suppose a lot of pictures of different sizes hanging on a wall, and we were asked to decide as to their relative height, we should require some common point of comparison. We might take the centre of each as a simple test, but we might equally take a point, say, nine-tenths of the way above or below the centre, if we took the same relative point with all. Any such question as what was the order, in respect of their height, of all the pictures, or whether any particular picture had been raised or lowered within a given time, would receive exactly the same answer, whichever such test we adopted.

Reverting then from this example to a more serious application. When we are comparing the stature of different nations, or of different classes in the same nation, or are inquiring whether that stature is increasing or diminishing as time advances, it does not seem to me to be at all necessary that the median and the mean should coincide, for us to feel at ease in resorting to the former. For these merely comparative purposes the two might differ considerably, and the answer to our questions would not be in the least affected.

Consider, for instance, the results of the measurements of the Cambridge students obtained at the Anthropometrical Laboratory started by Mr. Galton ("Journal of Anthropological Institute," November, 1888). A number of conclusions were drawn, of which the two following may be taken as samples: The stature of the class to which university students belong ceases to increase at a comparatively early age, viz., about 20; and when the students are divided into three classes, in respect of their mental attainments, no physical difference in respect of height can be detected between these classes. When these conclusions were being drawn I resorted to the *median*, in great part, in order to save time; but this was only done after specific examination had shown, what a wide induction supported elsewhere, that the curve of error being normal here, the median and the mean were practically coincident. What I now want to point out is that for conclusions of this kind such coincidence seems quite unnecessary.

In respect of *stature*, as just remarked, the median and mean do coincide, but in respect of *temperature* curves (and probably most other meteorological phenomena would present the same characteristic), they do not coincide. The difference undoubtedly is not great, but it is enough to illustrate the point in view. For example, this curve represents the relative frequency of the different degrees of temperature (maximum) at Cambridge during the twelve years from 1873 to 1885, including, therefore, about 4,400 observations. (The curve has been somewhat "smoothed.")



The curve is obviously unsymmetrical or lop-sided, and in consequence the median and the mean differ appreciably, by as much, in fact, as about 0·7 of a degree Fahrenheit. But almost every question which the meteorologist can want to answer could be determined just as well by one of these as by the other, and determined moreover to a degree of precision far exceeding the admitted difference between the two kinds of average in any individual case. A graduated list, for instance, of the various English or foreign health resorts, in respect of their annual temperature, would be almost exactly the same whichever scheme we resorted to; and so would the answer to any such question as whether the climate now, as compared with former years, was improving or deteriorating so far as temperature was considered.

II. In the previous case we are only concerned to a very slight extent with quantitative considerations; that is, we are doing nothing more than putting a set of groups in their order of precedence, or determining whether any particular group is rising or falling. But the moment we take a step further and reach the ground of definite quantitative measurement, by asking such questions as, How much is one above another? By what amount has this one risen and that one fallen? a fresh set of considerations comes in, and the selection of the kind of mean is no longer so freely at our choice.

But we must first inquire precisely what it is we want to do. The mean is a single fictitious value substituted for a plurality of actual values. It stands to reason therefore that the former cannot take the place of the latter for general purposes, any more than the centre of gravity can for purposes in general take the place of the system of material points to which it corresponds.

Take the simplest of possible cases. A man disposes of 1,000 packets of tea at half-a-crown apiece, and says that on an average they weigh one pound each, with individual variations. Here, as before, we are substituting a single intermediate value for the many that were actually assigned. And what can the former do for us? Just this: It assures us that if the seller had put precisely one pound into every packet, instead of the variable amount that he actually did put, he would have been in exactly the same position; and in this way subsequent calculation may be much simplified. But it is only for this particular purpose, and even for this purpose only so far as the seller and not the individual buyers are concerned, that such a substitution of an average, or fictitious construction of our own, in place of the concrete actual magnitudes, can be safely trusted. When a quantity of rations of food are issued out, the supplying party—the government or contractor—may with perfect accuracy replace the many actual variable quantities by a single fixed fictitious quantity in the shape of a mean; but to the receiving parties the substitution may let slip facts of vital importance. But, knowing precisely what we thus intend, we see that one kind of average, and one only, viz., the arithmetical, can be employed without error.

Now take another equally simple case: A population is found to have just doubled itself in the course of a century. There was an actual ratio of increase of course for each year which might have been determined, and if we had had all these ratios before us we should have had, as in all cases where we are dealing with an average, a plurality of actual magnitudes, possibly all differing slightly from each other. But we want for simplicity to have a *single* such value, and this we call the "average rate of increase." Will it do to resort here also to the arithmetical average, and to say that the average ratio of increase which will in one hundred years raise 1 million to 2 millions, is $\frac{1}{100}$th? clearly not. An increase of $\frac{1}{100}$th carried on annually for a century would raise the population from 10 millions to about 27 millions. The factor we want is, of course, the $\sqrt[100]{2}$ or about 1·007; this is familiar enough to every statistician.[2] The only purpose for which I bring it forward is to remind ourselves that an average in such cases as these can only be trusted to subserve one definite purpose, and that so soon as this purpose is assigned, we are necessarily bound down to one particular kind of average.

As a further illustration take the following case. The curve of temperature, as we saw, is markedly non-symmetrical. Suppose such a sample as that afforded by the curve above. What sort of average ought we to appeal to? The word "ought" I apprehend implies simply this—having defined precisely the end we want to secure, what process will serve to attain this end? As always, in adhering to a mean we are letting slip an enormous amount of information that might under other circumstances be necessary, in order to retain a more economical and convenient hold of the one characteristic which we then and there happen to want. Now what is this characteristic in the case of the temperature? I can conceive several which might correspond to our wants:—

(1.) Suppose, for instance, that it were ascertained that the flowering of plants or ripening of fruit was determined by what may be loosely called the total temperature they have enjoyed in the course of that year. That is, we might conceive that two successive days on which the temperature stood throughout at 32° and 52° respectively were precisely equivalent in their effect on vegetation to two days each of which marked 42°. If this were so, and this were the characteristic of importance to us, then clearly the arithmetic average is the only one fitted for our use.

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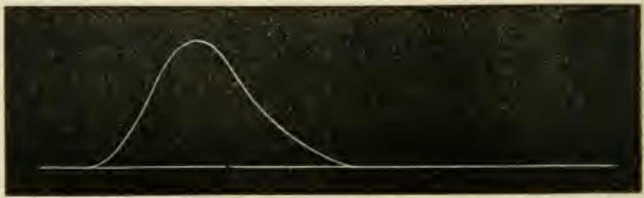
[2] In this particular form the error is hardly likely to be committed by any statistician. But substantially the same misconception, in a closely analogous form, is by no means unknown. For instance, I have seen it assumed that if (say) a population increases, during five successive equal periods, by 7, 6, 5, 4, and 3 *per cent.* respectively, we may talk of an "average" increase of 5 *per cent.* during each of those periods. This is not so, of course. The real average is, in strictness, not $\frac{1}{500}(107+106+105+104+103)$, but $\frac{1}{100}\sqrt[5]{(107\times106\times105\times104\times103)}$. That is, not 5 *per cent.*, but 4·99. The difference here is very small owing to the fact that we are dealing with such a small number (five) of intervals; the distinctive characteristic of the geometrical average, being cumulative in its effect, is far less prominent here than if we were dealing, say, with one hundred such intervals.

(2.) Or suppose again, that all temperatures below a certain point counted for just nothing. I presume that for the ripening of corn or fruit this is somewhat nearer the mark. If so, we should simply reject all occasions on which the temperature fell below this point, and take the arithmetical average of the rest. We should be seeking the mean point not of the whole curve of error, but of that very lop-sided part of it which fell beyond a certain mark.

(3.) But if the horticulturist ascertained that the lower temperatures counted something, but not much, towards the result, what we should then take would be not the common average but a "*weighted*" one, this being weighted according to the law, whatever this might be, by which lower temperatures were effective.

(4.) Again, we might suppose that the point of importance was, what temperature is *most frequent?* Speaking here for mere purposes of illustration, we might put the case that invalids were only allowed to go out, or that certain plants would only flourish, when the temperature lay between certain limits, say 60° and 70°. If so, the point of the "curve of error" to be attended to is what is called the "maximum ordinate" or most frequent value, rather than that indicated by the arithmetical average. No doubt these two points generally are very near each other, and often almost precisely coincide; but they are theoretically distinct, and for such purposes as we have now in hand they must be distinguished.

(5.) Once more, take a case in which what we are concerned with is the mere presence or absence of a quality above a certain degree, the *extent* of excess being a matter of indifference. For instance, if men are grouped according to their muscular strength as shown by a dynamometer, we get a curve somewhat like this:—



The difference here between the median, and the ordinary mean, indicates this abnormality, there being a separation of about one pound between the two. The former is 83·6 lb., the latter 82·6 lb. The difference is not great, but I prefer to select an actual example from nature rather than a fanciful one which should display the difference in an extreme form.

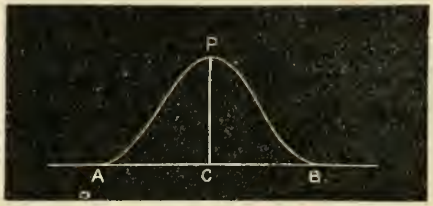
Owing to the presence of a comparatively small number of instances of very great strength—ordinates straggling, so to say, far up to the right, and unbalanced by corresponding defects of equal magnitude in the opposite direction—we get a curve of decided unsymmetry. "*Ought*" we to take the common average here? If the population were being estimated by their capacity to furnish blacksmiths or draymen I suppose we ought, because the practical value of absolute strength here bears some proportion to its amount. Without going so far as to assert that one man who can lift 800 lbs. is equivalent to two who can each lift 400 lbs., it will be admitted that the facts, as regards efficient work, tend in that direction. But for army purposes, say, is the Samson worth a bit more than the man of good muscular power? If not, then the arithmetical mean shifts the centre of importance too far upwards. It would be quite possible for a group of men, or a nation, to show a decidedly higher average in this respect, owing to the exceptional predominance of such giants, without their being any good grounds for rating them higher for purposes of practical utility. The *median*, in accordance with which these extreme values are merely counted, but not weighed, would seem to be the truer point of reference. That is—to sum up in one sentence—for all purposes of mere comparison, one kind of average will do almost as well as any other. If, therefore, one of these kinds is situated at a more critical or important point of the group of magnitudes in question than some other, then there seems sufficient ground here for the preference of the former. Our *special* purpose may have a peculiar or predominant reference to that point. And such an illustration as I have just offered seems to indicate that a preference of this kind may reasonably exist.

III. In the two foregoing classes of cases we have supposed ourselves simply to have a lot of variable values set before us, and to take them as they so stand, without asking whether there is anything which they are aiming at, any "*true*" value from which they swerve as errors in one direction or the other.

When we get on to this latter ground any but a superior mathematician must be cautious where he intrudes, for as every one knows this province has been profoundly studied by men of consummate power.

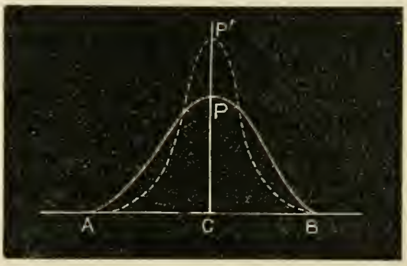
But the main *logical* principle, apart from quantitative details, or inquiries as to *how* accurate a result may be reckoned, seems to me to be simple enough, especially when put into graphical language. The way I look at the matter is this:—

Suppose there is some point C on the line AB which is being aimed at. Then we take it for granted—



that, whilst the general circumstances and conditions of the aiming process remain the same, the actual results will group themselves according to some law of frequency about C. The amount of this relative frequency at each assignable point may be represented in the customary manner by the curve APB.

Now the average (of whatever description) of any group of these efforts or aims is simply another such effort or aim. It is generically of precisely the same character as any of the elements from which it is deduced. Represent its curve by the dotted line.



I call attention to this because I cannot but think that there is some misapprehension on this point. The plain man is apt to suppose that the due preparation, according to rule, of an "average" gives him something superior in kind to what he started with. Any assigned average is better, no doubt, than the single values from which it was deduced, but it is generically of the same kind as they were. But it is obvious that it may, on the other hand, be of exactly the same value as *another* set of single values obtained under more favourable circumstances, or even distinctly inferior to such a set obtained under peculiarly advantageous conditions.

At this point the function of the mathematician comes into prominence. He is able to tell us several things which we could not have found out for ourselves. For one thing, he tells us that, given what we may call the primary error curve APB, the derivative or "average" curve AP'B will be more closely squeezed up about the central vertical CPP′, by our selecting the arithmetic mean, than by our selecting any other of the possible means. And more than this: the mathematicians are able to tell us with quantitative accuracy *how much* more squeezed up will be that dotted line according as we take groups of 2, 3, 4, &c., elements as the basis of our average.

It may be taken for granted, and generally *is* taken for granted, that the dotted curve is a better one for us than the plain one. But as we are in the logical mood, we will ask, *How* is it better? *Why* is it better? It will not do, in reply, just to repeat that the one curve is closer to the truth than the other, for two reasons: In the first place, the *curve* represents the limiting result of averaging for ever, whereas what we want to justify is the *single* average. And in the second place, to say that the dotted curve is nearer to the truth than the continuous one, is only another way of saying that little errors are more frequent on the former scheme, and that big errors are less frequent. And we should still have to face the question, How and why is this an advantage?

The first of these objections may, however, speedily be set aside. We *cannot* justify a single random selection from the dotted curve as being necessarily better than one from the thick curve. It may be much worse. Take a single random observation, and the average of a hundred similar ones, and the latter may be the worst of the two. All that we can say is, that "on the "average" the one is better than the other.

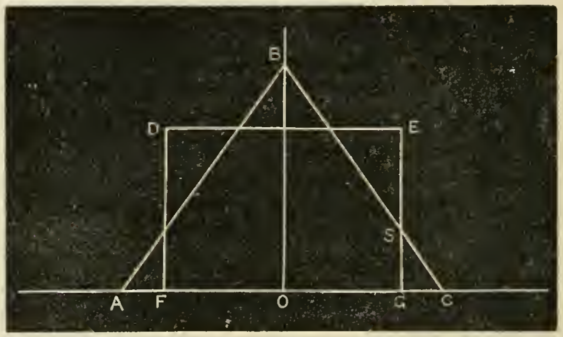
This brings us to what is, to my thinking, the weak point in the theory of errors as popularly explained and justified. There seem to be two difficulties which may be fairly brought forward here:—

(1.) In the first place, when it is urged that "*the*" average is better—that is, that the average of the errors is smaller—it is fair to ask, *what* average? The answer presumably is, the arithmetic average. But why this one should be selected rather than any other is not, I apprehend, explained with sufficient clearness. And in any case there would seem to be a logical flaw in justifying the result of an arithmetic mean, as compared with any other similar process, by starting with the postulate that the arithmetic average of the departures from the truth to which it leads us is to be the test of its superiority.

As we shall see presently, this difficulty and some others are alleviated by certain tacit conditions or notorious experimental facts commonly prevalent in the class of phenomena dealt with. But as a mere matter of general reasoning there does seem to me something awkward here.

(2.) But, in the second place, is the mere fact that the arithmetic average (or for that matter any other kind of average) is less on one plan of procedure than on another, a justification of the former, from which there is no appeal?

Take an example or two, as displayed in a diagram. The following represents two of the simplest conceivable laws of error. They are drawn, of course, to the same scale; that is, the area of each is the same. O is the point aimed at; in other words, the "true" value from which, by error, we deviate right and left.



DEFG represents a state of things in which all deviations up to F and G respectively are equally likely, but in which there is no possibility of exceeding these limits. (It corresponds to the familiar case of choosing a single digit at random out of a logarithmic table, or other mass of such like figures, for all the digits, from 0 to 9, will tend to present themselves equally often.) ABC represents a state of things in which all errors are possible up to the wider limits A and C, but in which the probability of an error diminishes uniformly and directly with its magnitude up to those limits. Simple calculation shows that the average of the errors in the case of the parallelogram is slightly greater than that in the case of the triangle. [If AO = OC = a, these averages (the "mean errors") are respectively $\frac{a}{2\sqrt{2}}$ and $\frac{a}{3}$].

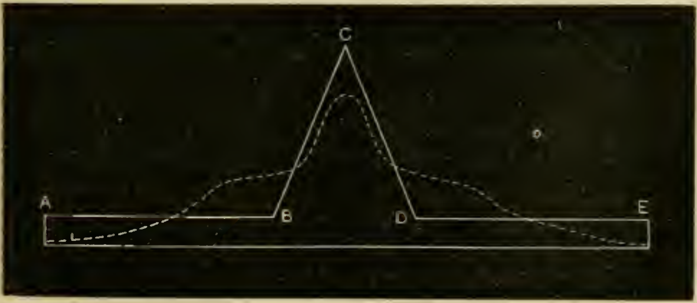
Is, then, one of these necessarily better than the other? That is, would there be any reason to prefer that the deviations from our aim should occur according to one of these laws rather than according to the other? This, it need hardly be said, is not a question for decision between one kind of average and another, but a question whether any kind of average is, by itself, a sole and sufficient guarantee for selection or rejection. The question seems to me to depend upon the particular circumstances of the case, and upon the precise requirement we have in view.

Suppose it was a case of actual aiming at a mark. Let O be the centre of an embrasure AC, and FG the width of the shoulders of a man posted before the centre of it. If any marksmen from a distance were taking a shot at him down the line BO, he would certainly prefer that the law of error should be that which is represented by DEFG than that which is represented by ABC. But this preference would have nothing to do with an average. It would turn on the fact that one scheme gives a slight chance of escape (the ratio of the triangle SGC to BOC), and the other does not. That is, we have here a case in which the predominant determining factor is the possibility of great errors; the "mark" wants these, whatever may be the wish of the marksman. On the other hand, for many scientific and other purposes the existence, on a certain scheme, of very wide errors may be quite sufficient to decide against a method which opens out such a possibility. And again there would be no necessary reference to an average.

The full state of things in the balance between the two simple laws of error indicated above is, of course, this: The triangular scheme or curve contains a greater proportion of very small errors, a less proportion of intermediate errors, and, again, a greater proportion (beyond certain limits a monopoly) of extreme errors. The simple assignment of an average blurs over these distinctions; but nothing less than the full statement can meet all the various purposes for which appeal might be made to one rather than the other.

In the former case we have drawn arbitrarily two conceivable "curves of error" for comparison. It may be objected that this is not a fair illustration, because one of them is not derived from the other by the process of averaging. That is, it may be urged that whatever the original curve of error, the derivative curve—*i.e.*, that assigned by averages taken from the former—must be better; better, that is, all through, so that no such contest of opposite qualifications can be possible.

Take, then the following example:—



Conceive a curve of error ABCDE defined by the following very simple conditions: Within certain near limits, B and D, errors are progressively less likely as they increase in magnitude; beyond this, to the remoter limits, A and E, all errors are equally likely. Take an average of *two*, then the dotted line will represent the curve of error of such averages of pairs. Again the same inquiry as before is raised, though here the question comes nearer home to us, for what we are asking is this: Has the process of averaging done us any good? The answer seems to be, as before, that this depends upon what our wants may happen to be. Is the increased prospect of small errors sufficient to outbalance the counter prospect, likewise increased, of errors which are somewhat larger?

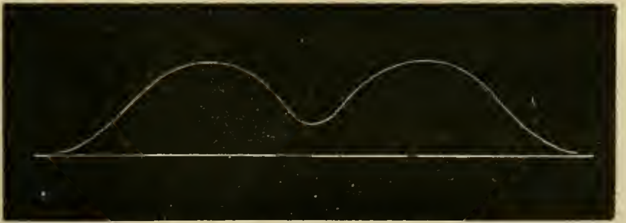
As the above example is only proposed by way of illustration, there would be no harm in its being merely fanciful. But I would suggest that similar alternatives for decision might very well arise in purely practical affairs. Put such a case as this. "Conceive that some engineering firm had received a hurried order "to export to a distance a single piece of a machine in order to "replace a piece that was broken, and that it was absolutely "essential that the work should be true to the tenth of an inch "for it to serve its purpose. Conceive also that two specifications "had been sent, resting on different measurements, in one of "which the length of the requisite piece was given as 60 and in "the other as 61 inches. On the assumption of the ordinary law "of error there can be no doubt that the firm would be making "the best of a very bad job by constructing the piece of the length "of 60½ inches., *i.e.*, they would have a better chance of getting "within the requisite tenth of an inch by so doing than by taking "either of the two specifications at random and constructing the "work accurately to this. But if the law were of the kind "indicated in the diagram above, then they might assume that "they would have a *less* chance of success on the former plan. "That is, as a mere question of probability—if such estimates "were acted upon again and again—there would be fewer failures "encountered by simply choosing one of the conflicting measurements at random and accurately working to this than by trusting "the result to the average of the two.

"I may be excused pointing out that even such a law of error "as that in question is not outside the bounds of possibility. "Suppose, for instance, that one of the two measurements had "been made by a careful and skilled mechanic, and the other by "some workman who had simply reckoned to the nearest inch— "the firm having come to a knowledge of this fact, but being "unable at the time to assign the two results to their authors—we "should really have very much such a law of error as I have "postulated above."[3]

Now take the class of cases in which the curve of error is hump-backed, *i.e.*, presents *two* maxima with a depression between. Ought we to take the mean, or average of any description, of the two? This turns upon what we want to do with the data, and on the process by which they may have been obtained. Broadly speaking, curves of this particular description may be obtained in two distinct ways, viz., by what may be called artificial or natural processes, and a good deal turns upon this distinction.

(1.) As an artificial process we might take the aiming at any kind of mark, in the widest sense, actual or metaphorical, of the words "aim" and "mark." If in addition to the many trifling causes of disturbance which produce the familiar law of error, we suppose two preponderant causes, of about equal and opposite influence, which tend to act alternatively, we shall get such a result as that of a hump-backed curve of error.

For instance, we know that under ordinary assumptions as to the prevalence of disturbing agencies, the shot marks at a target will cluster about the bull's-eye, and therefore yield what is, diagrammatically, a simple curve of error of the familiar description. But we might conceive that circumstances should give a strong alternative bias to the aim. If, for example, the marksman, firing from a sheltered glen across a broad valley, had no suspicion of the existence of a strong wind blowing up or down the valley, and could not see the spots where the bullets struck, the effect would simply be to give a decided lateral shift to the whole group of shot marks. And if the wind veered into the opposite direction during the course of the practice, we should get two such groups of shot marks, each clustered about its own centre, but with these centres a considerable distance apart. The diagram for the consequent curve of error would be such as this:—



Here, again, the question arises: "Ought" we to appeal to the average? That is, given any two or more shot marks, should we assume that the mean point amongst them is the best available clue to the point really aimed at?

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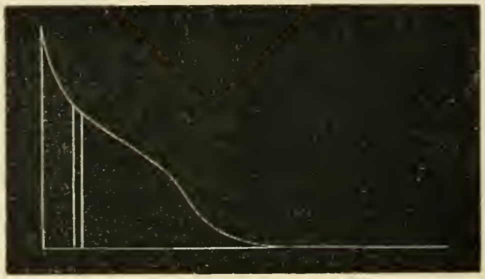
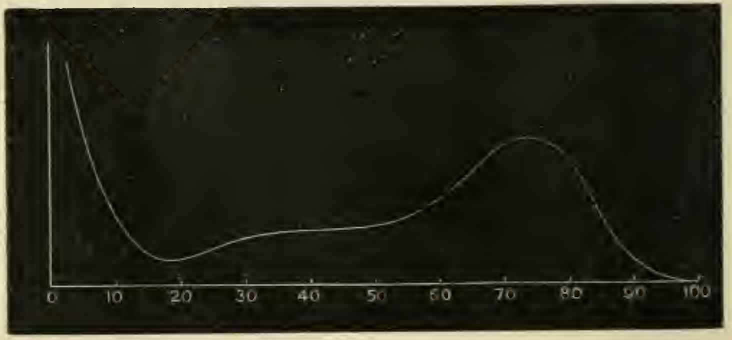
[3] "Logic of Chance," p. 495.

In such a case as this, where the phenomenon is an artificial one, that is, where we know that one definite aiming point, and one only, was contemplated throughout, we should of course appeal to the average. And it would in the long run guide us to that central spot, which though almost unattained in execution was constantly present in intention. But then, in such a case as this, since we are dealing with human actions, we know exactly what we are about. We feel tolerably sure that the marksman contemplated one single aim throughout, and we interpret the facts in accordance with this pre-conception.

(2.) Now contrast with this the following case: Every statistician is familiar with the ordinary life table as expressed in a diagram, where the ordinates successively represent the number of some total generation at birth, and the number of survivors in each following year.



Modify this mode of representation slightly, so as to make it exhibit what might be termed a *death* table. That is, let each successive ordinate stand not for the number of survivors, but for the total number who have died in that year of age. This second figure may be obtained at once from the former by the following process. Detach each elemental strip by which one ordinate falls short of the preceding, set all these strips up side by side as a new set of ordinates, and, for convenience, magnify them all in the same ratio, and we get at once such a curve as the following:—



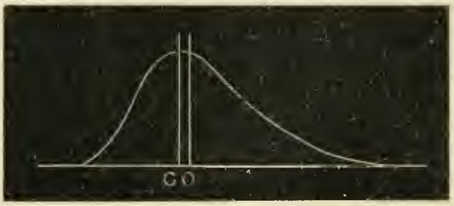
Here, of course, the whole area represents the total generation (corresponding to the first vertical ordinate slip in the preceding figure); and each successive ordinate represents the chance of a person of whom nothing is known but that he has just been born, dying in the year corresponding to that ordinate. The first maximum, to the left, is of course at birth. The second, to the right, is (for the English race) at about the age of 71.

Such a curve of error resembles in essentials that which indicated the comparative prevalence of the shot marks in our last example, in that it displays two maxima with a minimum between them.

Ought we then here also to take the average? In other words can we rationally say that nature was aiming at a life of about 41 years, but was as a rule diverted from her aim, falling short of it in a vast number of cases by some 40 years, and exceeding it in many others by some 30? Such a suggestion is of course merely noticed in order to emphasise the extreme insignificance of the simple average taken by itself. The average duration of life no doubt subserves useful purposes when employed in the way of comparison, though even such use is largely dependent upon the existence of certain tacit assumptions. But taken by itself it really tells us almost nothing. The particular age indicated by the average has none of the significance acquired by the mean point when that point, as commonly, is also the point of maximum frequency.

If we are to use the language of metaphor, and speak about "aims," it would seem more appropriate to recognise *two* such. One at about the age of 71 or 72, which is nature's aim; the length of life for which she builds a man; the dispersion on each side of this point being (as Professor Lexis has shown by the statistics of various European countries) nearly normal. The other is at birth. It is (so to say) the aim of man, as interpreted by his unsanitary proceedings, to kill off the children at once; an aim which he also often fortunately fails to secure. The dispersion at this end of the curve of course cannot be normal, for we reckon only on one side of the point of aim.

Speaking of "nature's aim" in this metaphorical sense, it may be pointed out that a precisely similar question is raised, though in a less sharply alternative form, whenever we have an abnormal, asymmetrical error curve. Take for instance the curve exhibited by the daily readings of the barometer. The result of 5,000 such readings, when plotted on paper, gives a very smooth and steady curve, but one which even to the eye is very distinctly unsymmetrical.



The mean point and that of maximum frequency differ by 0·07 of an inch, a difference which is somewhat considerable in a total extreme range of about 3 inches.[1] Suppose now that such a curve were set before us, with the accompanying intimation that it was to be regarded as a true "error" curve, but without the slightest intimation of the agency by which it had been produced, how should we read it? Surely we should conclude that the point aimed at was C and not O; and that as regards the marksman, he, or it, or whatever was the agency in question, was subject to an unequal number of opposing diverging influences. As most of those present know well, the ordinary symmetrical error curve is the outcome of a continued aiming where the opposite disturbing causes are *equal* in number, independent, and infinitely numerous. You know also, probably, that if the causes still remaining indefinitely numerous are *unequally* divided, for example, with twice as much tendency to the left as to the right, we still get an error curve of the symmetrical description, the only difference being that the position is shifted two-thirds of the distance from the right limit towards the left limit. Suppose then that such a curve were set before us, as a mere fact of experience, and we were left to conjecture by what actual process of agency this unsymmetrical arrangement of results had been brought about, what process would seem at once the simplest and most natural? I think such a suggestion as this would seem the most natural: Conceive a *small* number of equal and opposite disturbing agencies unequally divided, say in some such ratio as 5 : 4, we should have an error curve which, *when smoothed out*, would yield much such a shape as we want. The physical counterpart to the graphical "smoothing "out" is, I apprehend, the supposition that each of these primary disturbing agencies is itself subject to a large number of minute disturbances which are equally divided in opposite directions.

I need hardly say that this is not intended as a suggestion that the table of barometric heights was brought about by any such set of agencies as this. But what does seem to be suggested is that when, in cases of this unsymmetrical kind, we come to talk about

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[1] Here C marks the maximum ordinate; O the point corresponding to the arithmetic mean.

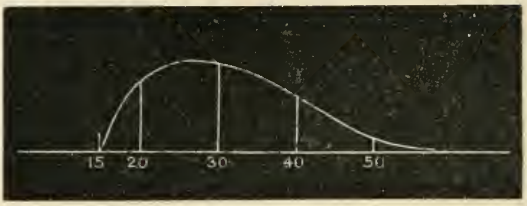
"aims" and "objects," as we so commonly tend to talk, then the centre of interest and significance must be sought, not at the "average" point, but at the point of "maximum frequency." And when, as in such a death-table curve as that just displayed, we have *two* such points of maximum frequency, it is these, and not the average point somewhere between them, which can claim this interest and significance.

It may be objected that all these necessities of distinction between one kind of average and another have very little practical importance, for that the familiar arithmetical average works sufficiently well in every case to which we choose to apply it. If what I have urged this evening be true, such an objection has less force than is commonly supposed, but it is well to consider what are the causes to which it owes such force as it has.

I. In the first place the great majority of the error laws with which we practically have to do are approximately of the same normal type, at any rate towards the centre, and it is with the neighbourhood of the centre that we are chiefly concerned.

This, I presume, is the reason why even theoretical requirements seem to be sufficiently secured in the province of mensuration by the assignment of two elements only, viz., "the mean" and the "probable" or "mean error." The first of these fixes the centre of a Probability Curve, or Error Law (C); and the second assigns the degree to which it is spread out, or crowded up towards the middle. If to these explicit data we add the implicit assumption that all the admissible curves are to belong to the same general class, the two elements in question suffice for complete determination.

When we are dealing with other considerations than those of mensuration, especially with such as concern the social state, we must be careful how we admit this assumption. There is much popular looseness of apprehension in this respect whenever questions of average wages are discussed. To say nothing of the popular agitator who has a purpose to serve, and who, when he describes the ever deteriorating condition of the "proletariate" expressly confines his attention to the stratum at the bottom; even the *average* condition of the labourer is insufficient for social economic purposes. I need not point out to such an assembly as this, that what the social inquirer wants is not merely an average or middle point; but that what may be termed the *shape* of his curve, and any possible alteration in this shape are matters of vital importance. The only satisfactory plan in such a case would be to construct, say, a base line marking amounts of wages, and to set up ordinates marking the relative numbers in receipt of each such amount, in some such fashion as this :—



If a similar curve were plotted out in order to represent the state of things, say, fifty years afterwards, the position of the average point, and whether this had shifted upwards, would be only one subject of inquiry, and possibly not the most important. Characteristics which that average could not tell us might for social purposes be yet more important, such, for instance, as the relative distribution of the various amounts of wage in excess of, and in defect of, the mean.

II. Another condition which, as it seems to me, is commonly taken for granted, and necessarily so, is continuity of possible values between the prescribed limits. An extremely simple illustration will show how this characteristic is instinctively recognised in certain cases, even by those who have made no study of the nature of an average. If two persons respectively reckoned the distance of Cambridge from London, as being 50 and 60 miles, a third person, who had no reason for suspecting one distance rather than another, would in default of further information naturally guess 55 miles to be the most probable distance. But if two such persons respectively gave it as their opinion that some one known to them was at Cambridge and at Oxford, the "most probable" situation for him would hardly be in one of the small villages between Bedford and Bletchley. In other words, to speak more precisely, it is commonly taken for granted in most kinds of measurement that the thing which we have to evaluate is prior to, or entirely independent of, our scale of measurement; so that it is just as likely to fall at one point of our scale as at another. Such a supposition is generally valid when we are concerned with natural objects, but needs some caution when it is applied to artificial objects. A simple example will serve to show the contrast here intended: if two measurements of the circumference of a *tree* are set before us, we should, in accordance with common usage, select the mean between them as the most likely value. But if two measurements of the circumference of a *drain pipe* showed the same magnitudes and discrepancy, should we be equally justified in selecting their mean? We should be very cautious in doing so, for I should think it extremely probable that drain pipes are made in even numbers of inches in respect of their diameter. If therefore the two estimates gave respectively $21\frac{1}{4}$ and $22\frac{1}{2}$ inches of diameter, I should select—not $21\frac{7}{8}$—but 22 inches. And if the mean fell exactly between two clear inches, I should think that it was better to reject this intermediate value, on the ground that we are almost certainly wrong in adhering to it. And in regard to the complete inches between which it lies, it would be as safe a course as any to choose at random between them, as we should then have very nearly an even chance of being exactly right.

Where we know nothing of the scale of measurement according to which the object is likely to have been constructed, this principle cannot be applied. If the drain pipe came from Japan, and I knew nothing of the Japanese units of length, though it still remains likely that certain lengths which may have been exactly yielded by the average are to be set aside, and some other length which was only approximately yielded is to be selected instead, yet in our ignorance as to what these latter are, the average again asserts its probable superiority. At least it does so when we have but a few results to deal with. Where the results become very numerous, I need hardly remind those acquainted with Mr. Flinder Petrie's brilliant investigations into the subject of "Inductive "Metrology," that a mere study of the measurements obtained, and observation of what lengths show a preponderant frequency, will by itself yield strong evidence that this or that particular magnitude is the unit according to which the materials were worked. As soon as this knowledge is acquired, the average may again stand in need of occasional correction or even supersession.

The general conclusions involved in the suggestions above offered might be thus summed up. Every sort of average—and there are many such sorts—is a single fictitious substitute of our own for the plurality of actual values existent in the results which are naturally or artificially set before us. It is impossible, therefore, for the former, in any case, effectually to take the place of the latter. But the extent to which it may succeed or fail in doing so will depend upon the nature of the facts presented to us, and still more upon the precise object we have in view. Three cases may be suggested:—

(1.) If we are only concerned with comparative results, and these presumably form the bulk of statistical inquiry, then almost any kind of average will answer the purpose.

(2.) If we want accurate quantitative results, then the selection of the kind of average is no longer at our disposal, but must depend upon the precise object we have in view. The common arithmetic mean *may* be the best, and probably in most cases is so, but circumstances can easily be suggested in which some other kind of mean becomes not merely more convenient but distinctly more accurate.

(3.) There is the well known class of cases, of which the Science of Mensuration offers the most familiar examples, in which the "mean" is resorted to in order to discover what is regarded, accurately or metaphorically, as the true value. Without in the least wishing to criticise the customary methods and conclusions, I have ventured to suggest that it may depend upon the object we have in view, not merely what kind of average should be selected, but whether there is a necessary gain in employing any kind of average at all.

When, indeed, the "true value" at which the aim is supposed to be directed becomes purely metaphorical, as in the curve of mortality, it is very doubtful whether the resort to a single mean or average is not, for some purposes, not only unsuitable, but actually misleading. Where the Curve of Error is very unsymmetrical, and still more where it is hump-backed or double-backed, the mere assignment of an average, without definitely indicating the law of grouping about this average, may misdirect the attention from some of the most important characteristics of the phenomena.

DISCUSSION *on* DR. VENN'S PAPER.

MR. FREDERICK HENDRIKS said he was sure all present would concur in thinking they were very much indebted to the learned author of the paper for his clever and ingenious exposition of principles, which were of very great importance to that Society. He had done very great service in recommending the continuance of that caution which they had more or less always exercised as to the particular methods by which averages were taken. It was to some extent gratifying to find the author did not object to the system ordinarily adopted of taking the arithmetical mean, because, in that Society at least, taking the geometrical mean, in such averages as they usually had to investigate, was a process in which they did not often indulge. The paper contained however a great many very startling premisses, and a great many startling corollaries drawn from those premisses. The points which particularly attracted his notice as an actuary, were the observations made respecting the life table, stated in the form of a table showing the expectation of life both at birth and at every other age. The author evidently thought very small pumpkins of it, but this suggestion was directly in contradistinction to the ideas accepted by the general body of actuaries. As a member of that fraternity he (Mr. Hendriks) thought he might be allowed to say that it generally regarded the method of construction of the life table as the perfection of human reason, and that, given the accuracy of the data, nothing could be devised by scientific skill which could in any way afford a more perfect rendering of what was most important in vital statistics. He must therefore join issue with the author as to the expectation of life indicated by the life table being of extreme insignificance even when taken by itself. It was the most concrete form in which the results for comparison of the ever-varying longevity of the people of the country could be presented. Let them consider how the ordinary table of expectation of life was made. During the last month they had been giving to the census enumerators returns telling the ages of the people of this country, so that the numbers exposed to the risk of mortality at each age on 1st April, 1891, were ascertainable from these returns, and in the course of the current year the deaths at every age would also be recorded. That would give sufficiently exact data for estimating what was the rate of mortality in the year from 1st April, 1891, to 1st April, 1892, at every age they could name. Both practically and scientifically there could be no more perfect means of getting at the mean rate of mortality at every age in this country. The table of expectation of life simply meant that if the ratios of mortality at all ages continued during the whole future possible years of lifetime of those people as they were at present, a certain definite amount of longevity would on the average attend to each person. That was not insignificant, because it was the best means of comparison which was comprehensible to the public mind in relation to the effects of sanitary or other circumstances affecting health and length of life, and it was also the means of comparison with the expectation of life in other countries. If there were any changes hereafter occurring in the observed ratios of mortality from which the expectation of life is deduced, precisely analogous observation went on at the next census, and they were thus able to correct the calculation from period to period. It was indeed somewhat difficult to see how Dr. Venn had arrived at a conclusion so very adverse to that particular branch of statistical inquiry. He (Mr. Hendriks) had only had an opportunity of considering the paper for about an hour, and was not sure that he could quite find the key to the riddle; but it seemed to be this: The author first took the curve showing the ordinary life table. He then proceeded to say that he wished to modify this mode of representation slightly, so as to make it exhibit what might be termed a death table. Now if the curve of the life table were simply turned upside down it was clear the diagram would represent the death table, since life or death was the only possible alternative to be illustrated in the two curves. But instead of doing that, the author had made a diagram which expressed the compound probability of surviving from birth to any given year of age, and then dying in that particular year of age. Naturally any curve representing a compound probability of that kind would show very irregular results; in fact if they deduced a curve from such compound probabilities they might have them wriggling about in their delineation something in the shape of an eel or a snake; no doubt there would be a great many maxima and minima in it. He was also at issue with a great many of the collateral statements of the author in justifying his views on this very important subject of criticism of the merits of the life table. The author of the paper seemed to attribute the irregularities of his curve to the great death-rate at birth caused by unsanitary proceedings, and to something special surrounding the age of 71 or 72, which age he describes as nature's aim, the length of life for which she builds a man. This normal space of life would, according to the theory of the late M. Flourens of the French Academy, have to be extended to 100 years, or we might go farther back, and with Plato (in his "Timæus") allege that all deaths by disease prior to the period prescribed by nature, are violent deaths. Now of course we know that in the first year after birth the mortality is really greater than at any age until we arrive at the ages of from 80 to 84. But Dr. Venn assumes that it is not nature's law that it should be so. But it was very extraordinary that as far as the records of the human race went it had always been so, and it was most questionable whether it was not rather nature's law that infants should die in proportionately greater numbers soon after birth than at any other period of life except extreme old age. There were many causes which showed that nature, or as he would rather call it, providence or the divine decree, designed that children should die in comparatively large numbers, as otherwise the world would be very much over-peopled. If children did not die in something like the ratio shown by the life table, and if all people lived to the average expected age of 70 or 71, for as he understood the author that was the natural average length of life, the result would be the world could not hold the population that would exist, and they would either starve or else perhaps be eating each other out of the means of life.

As regarded the method of taking averages of barometric observations, Dr. Venn recommended that there the points to be looked to should be varied according to the ideas of people. He (Mr. Hendriks) could not conceive any better method of registering barometric observations than the usual one of showing the average height during the day, month, or year, for if the other plan of recording maximum frequency of a particular reading as more important were pursued, agriculturists on the one hand desiring wet weather, and railway companies on the other hand wishing fine weather, would frequently be in conflict of judgment according to their own particular view of what the "error curve" really consisted in. As to the author's recommendations with regard to the averages applicable to a branch of social economics, although the suggestion in the diagram was a very good one, it only referred to the amount of wages and the relative numbers in receipt of those wages. Such a diagram would be very defective if taken at intervals if it did not refer to the percentages of the working classes receiving wages of given magnitude at each time. If it was confined merely to the amount, it was clear it would not be of much value. He (Mr. Hendriks) could not quite understand the process of reasoning connected with the author's example of average measurements of the "drain pipes." The author spoke of two estimates, presumably those of two surveyors, who gave figures respectively the one of $21\frac{1}{4}$ and the other of $22\frac{1}{2}$ inches. He then said he should not select the arithmetic mean of $21\frac{7}{8}$, but 22 inches; but the reasons he assigned for that view appeared to be unscientific, and such as they ought not to adopt. It was only two measurements or two estimates that could come into play in determining the probable average number of inches. But any hypothesis such as Dr. Venn's, of its being extremely probable that this was a mistake, because he thought that drain pipes are made in even number of inches in respect of their diameter, and that therefore we should be almost certainly wrong in adhering to the arithmetical or intermediate value of the measurement, was not an admissible element. Indeed it was opposed to what was scientifically settled at the earliest time when the bearing of arithmetical means on the science of probabilities was first investigated. This was a question of some importance, and was by no means a new one. As long ago as the year 1700, Leibnitz, in his "Nouveaux Essais sur l'entendement humain," stated that in the valuation of lands, when any heritage had to be sold, the peasantry of Lower Saxony were accustomed to form three companies of valuers, and each company made a separate valuation of the property. The arithmetical mean between the three equally admissible suppositions, anything extraneous to the actual figures not being admitted, was then taken by the axiom *æqualibus æqualia*, for equal suppositions we must have equal considerations. This, as Leibnitz remarked, was the foundation built upon by the grand pensionary John de Witt in the first mathematical application of the doctrine of probabilities to the construction of a life table, in his short treatise on life annuities printed in 1672. This treatise Leibnitz was unable to find, but on its recovery and translation by himself (Mr. Hendriks) in 1851, it was seen that Leibnitz was right, and that the proper application of the arithmetic mean was the true basis of the first application of the theory of probabilities to the life table and to the scientific calculation of life annuity tables.

Mr. Francis Galton said the author's extremely lucid paper had the great merit of treating his audience not merely as recipients, but of making them think, and thereby widening their views. There could be no doubt that there was a kind of idolatry of the word "mean" amongst statisticians generally, who too frequently used it for purposes to which it was not suited. Their late President, Dr. Graham Balfour, commented strongly upon a common form of a misuse of means in his latest annual address. No outsider could read current statistics without being painfully impressed with the frequent want in them of logical clearness.

Men of science were often reproached as a class with being deficient in the logical faculty, and he feared the accusation was true. No science stood more in need of the criticisms of logicians than statistics. They all knew that Dr. Venn possessed a logical mind in an eminent degree. In his admirable work "The Logic of Chance" he had tapped, as it were, at a multitude of current assumptions to find how far they were sound, and had pointed out numerous flaws or ambiguities; this he had also done in the present paper. The view that the author took of the arithmetic mean did not precisely coincide with that of his (Mr. Galton's) own, which had, he thought, the merit of being a somewhat more general conception, and yet less liable to misapplication. It was as follows: They all agreed that groups of events, in order to be of use statistically, must possess statistical uniformity; in other words, that all large and equally numerous samples of them must be statistically alike. It was not to be expected that they should be mathematically identical, because all statistical results were only approximate. Still, so long as the constitution of all large samples was so nearly alike that whatever differences there might be between them did not lead to appreciable error, then they might be described as statistically uniform. His own view of the arithmetic mean was to look at it merely as a multiple obtained by dividing the sum of the values by their number. In other words, the arithmetic mean was a coefficient which, multiplied into any given number of values taken at random, gave their sum. From this point of view the mean was not regarded as a fictitious interpolated value, but a coefficient which gave the sum of any given number of values by multiplying it into their number. The mean so regarded was simply a method by which a summed value could be obtained. As no mean can adequately represent a plurality of values, it appeared advisable to have schemes of distribution before the mind, as far as was possible, when devising the most appropriate form of statistical treatment in intricate problems. He himself always adopted this simple method of considering a series as a whole, until he felt that he knew exactly what he was able to get out of it. Among the many different possible means it must be remembered that the advantage of the arithmetic mean was that it was the only one suitable to the case of absolute ignorance of the natures of the disturbing conditions. If that absolute ignorance existed, then it was as nearly an axiomatic truth as could be that the arithmetic mean was the best of all; but statisticians were very seldom in absolute ignorance of the conditions by which the events they dealt with had been moulded. It was in the neglect of partial knowledge that the chief pitfalls in the path of statisticians appeared to consist. Statisticians ought to take every scrap of their knowledge into account, and to utilise it to the extent it fairly admitted, not giving it too much weight, but never ignoring it. He had tried to make a selection of marked forms of lop-sided curves, and endeavoured to find out the more prominent theoretical conditions under which they might have been formed. It was a suggestive process, for whenever a new lop-sided curve had to be considered, a reference to such a list would afford a certain number of suggestions, by no means exhaustive, but which might be helpful. He could only refer once more to the extreme lucidity of Dr. Venn's paper.

Professor EDGEWORTH remarked that the author had done very useful work in inducing members of the Society to meditate about that statistical practice in which they were constantly occupied. He forgot what proportion of life Matthew Arnold said should be employed in metaphysical reflection about conduct, but he was sure that what might be called meta-statistical contemplation was occasionally very necessary. He wished to connect this remark with some observations on the two stages of statistical theory which the author appeared to have constructed. He meant first, that more familiar region of the common average or mean value which was, so to speak, accessible to all; and secondly, the higher storey only accessible by means of the scaling ladder of mathematics, which consisted of deviations from averages or mean values. Under the first head he might take as an instance the determination of mean variation in prices. For example, there was a special mean correlated with the question: how much the price of what were considered necessaries, the price of the board and kit of the general population, might have varied. But apart from that there was a general mean, the mean value of the given price variations, regarded as so many figures, and without reference to any special purpose. The author was, no doubt, quite right in saying that the general average need not be always the arithmetic mean; in fact, for some purposes other means were better. He took as an example a recent Parliamentary paper in which the average number of hours worked per week, in several trades at different periods, was shown. They had there some of the characteristic dangers of averages. In the first place the average week did not state the amount of overtime. He (Professor Edgeworth) was at present concerned to speak of the convenience and accuracy of one of the means of which the author spoke—the median as contrasted with the arithmetic mean in a case like the following. In the case of the stone-masons the standard hours worked in some 132 different places were given for the years 1890 and 1870. It would be very laborious work to take the arithmetic means of these two sets of figures, and moreover they would be rather apt to be inaccurate. There might be some little pottering place which had experienced a large variation in the number of hours worked, and by making it count as much as the others in the formation of the arithmetic mean they might very much distort the average; that little place might unduly impress its individuality upon the whole average. The better mean was the median. The median for all the places proved to be 56 (hours per week), for 1870; if they split up the series into two parts the median for each part would still be 56. For the series of 132 returns for 1890 the median was 54; the same result being obtained both for the parts and the whole. That was as good a measure, under the circumstances, as they could get of the change of the length of hours per week. He would invite some practical statisticians to state objections to this median; apart, of course, from the special purposes for which an arithmetic mean was suited. In such a case as he had put, another mean mentioned by the author was also appropriate, namely, the greatest ordinate, the centre of greatest condensation. But there was a practical difficulty about the use of this mean, the difficulty of determining it definitely, especially when the number of returns is small. Upon the second and higher stages of averages he might say how very fortunate they were in having Dr. Venn present to lead them to reflect upon first principles. Dr. Venn occupied rather a peculiar position with respect to this higher and more abstract theory of statistics—a position much like that of the historical economists with respect to the earlier and severer deductive reasoners—criticising the received axioms and rounding off their too sharp corners. They had an instance of this in much of what Dr. Venn had brought before them with respect to the character of the deviations from the true mean: saying that they must look to the purpose and end in view in measuring the disadvantage of inaccuracy, in fact introducing an element of utilitarian philosophy. That element seemed to be lost sight of by the practitioners to whom Dr. Venn alluded as "starting with the postulate that the arithmetic average of the departures from the truth to which it (a proposed process of taking an average) leads us is to be the test of its superiority." It is true that the phraseology of some of the mathematicians was open to that objection. Yet it would be found on careful examination of Laplace's reasoning, that he had not neglected the utilitarian aspect of the problem of errors. "Interpreted generously," Laplace, like Ricardo, generally came out right.

In further illustration of the criticism to which the older theorists were open, Professor Edgeworth then referred to the calculations of life tables. First, he denied that Dr. Venn's remarks were meant to disparage that triumph of ingenuity. It would be generally admitted that, as the author intimated, an increase in the average duration of life was a most imperfect test of improvement, unless they knew at what ages the gain took place. In his idea of a death table, the author had in view the abstract theory of type. The author was of course alluding to Lexis' theory, that the distribution of these decrements fell into a certain typical form; and there was a kind of reality about that. There was, in fact, as Lexis said, some kind of presumption that nature was aiming at the length of life which the Psalmist assigned. With respect to these actuarial calculations, it was a most profound remark of De Morgan's, that there was a very great deal of waste of labour in pursuing different decimals to the seventh place, without having any test of the "error" to which those figures were liable. De Morgan himself, walking in the way of the older classical probabilists, calculated a rule for the same error (in his Calculus of Probabilities), and he calculated it upon a principle which Dr. Venn and his German colleague, Mr. Lexis, had shown to be generally inapplicable, namely, the analogy between the ideal cases of balls and bags and these cases of concrete statistics. De Morgan's calculation as to the probable error of these actuarial calculations might remind them of the saying of the witty French-man: that after estimating the error of the calculation, one ought to estimate the error to which that estimate was liable. For it would seem just for want of this meta-physical or meta-statistical reflection to which the author had introduced them, that the error assigned by De Morgan was very much below the mark; the actuarial calculations were really even more uncertain than De Morgan admitted.

In conclusion, Professor Edgeworth admired the felicity with which Dr. Venn extracted profound truths from homely illustrations. In this respect he might be compared to Socrates, who, we read, was always talking of "smiths and cobblers," and common objects. Professor Edgeworth adverted particularly to Dr. Venn's instance of drain pipes. He had there conveyed with remarkable simplicity the important principle that the methods prescribed by the mathematicians for obtaining the best mean, are only valid on the assumption (generally, but not necessarily always, justified) that the *à priori* probability of the true mean having any particular value was the same or not materially different for all possible values.

Dr. VENN (in reply) said he wished to clear up a misconception. He must have expressed himself badly in the paper if he had seemed to say a word derogatory to the familiar life table of which he had given a diagram. He had the greatest possible respect for it, and if he passed it over in five or six words, it was merely because he took it for granted in such an assembly that its merits would be so universally recognised that no more was necessary with reference to it. He did not quite understand in what sense it was said that the next diagram was obtained by turning the previous diagram topsey-turvey.

Mr. HENDRIKS said his remark was that the author could have done so if he had wanted to show a death table. Instead of that he had constructed a diagram showing, *not* a simple death table, but the compound probabilities of a life at birth attaining each possible age of human existence, and then having survived that age, dying in the year following.

Dr. VENN said the point shown by the table was one which was simple but also very important. Each respective ordinate in the bottom table allowed the relative chance of a person (just born) dying in a given year, and there were certain characteristics thus brought out which, although they could be deduced from the previous table, were by no means so obvious. The bottom diagram in fact corresponded in the height of the ordinates to the inclination of the tangent of the curve in the previous diagram. He could not accept the doctrine as to the natural age of man being 100. A mere glance at such a table as this showed that the natural or normal age of the English race was rather about 71 or 72.

Mr. BAILEY: The extreme age?

Dr. Venn: The age about which the survivors from youth centred. Given the mere knowledge that a child was born, if they were asked to name successively the ages in their order and the probability at which it would die, they would begin 1, 2, 3, 4, and would then go on to 71 or 72. After centreing for a time about that latter point they would revert again to 5, 6, and so on. One reason why he called attention to this figure was that there were certain characteristics which, although they might be obtained by other means, were only prominently exhibited to the eye by this curve; for instance, what had been marked out by Professor Lexis in considerable detail, that they might have different races of men where the average of life was identically the same, though the second maximum or "normal" age was decidedly different. He wished to clear himself of any imputation of having spoken in disrespect of the common life table, which for certain special purposes, and for the purposes of an actuary, he would fully admit was all important. The point about the drain pipe he confessed he must adhere to. The illustration quoted from Leibnitz, that when the question of the value of a property was to be determined it was done by taking the average of the estimates of two or three valuers, belonged to a class of cases which were well understood. He had taken for granted a good deal of what was familiar and common, and had laid stress upon the comparatively few exceptional cases in which their *à priori* knowledge of the particular circumstances in hand enabled them to set aside and to correct the familiar arithmetic average.

The President said there remained but one other duty to be performed, namely, to give their most cordial thanks to Dr. Venn for the admirable paper which he had brought before them, and also to those who had taken part in the very profitable discussion that had followed.

PRELIMINARY REPORT *of the* CENSUS *of the* UNITED KINGDOM.

THE following details on the population of the United Kingdom are extracted from the Preliminary Reports of the Commissioners appointed to take the census in England and Wales, Scotland, and Ireland respectively:—

ENGLAND AND WALES.

" *Total Population of England and Wales.*

"The total number of persons returned as living in England and Wales at 12 p.m. on 5th April, 1891, was 29,001,018.

"This shows an increase of 3,026,579, or of 11·65 per cent., upon the number returned at the previous enumeration of April, 1881.

"Not only was this increase absolutely less than that of the preceding decennium, 1871-81, but the rate of increase was lower than in any previous decennial period in the century, that is, in any decennium since the first enumeration in this country.

Date of Enumeration.	Number of Inhabited Houses.	Population.			Increase of Population since last Census.	Decennial Rate of Increase per Cent.
		Persons.	Males.	Females.		
1801, Mar. 10	1,575,923	8,892,536	4,254,735	4,637,801	—	—
'11, May 27	1,797,504	10,164,256	4,873,605	5,290,651	1,271,720	14·30
'21, ,, 28	2,088,156	12,000,236	5,850,319	6,149,917	1,835,980	18·06
'31, ,, 29	2,481,544	13,896,797	6,771,196	7,125,601	1,896,561	15·80
'41, June 7	2,943,945	15,914,148	7,777,586	8,136,562	2,017,351	14·52
'51, Mar. 31	3,278,039	17,927,609	8,781,225	9,146,384	2,013,461	12·65
'61, April 8	3,739,505	20,066,224	9,776,259	10,289,965	2,138,615	11·93
'71, ,, 3	4,259,117	22,712,266	11,058,934	11,653,332	2,646,042	13·19
'81, ,, 4	4,831,519	25,974,439	12,639,902	13,334,537	3,262,173	14·36
'91, ,, 5	5,460,976	29,001,018	14,050,620	14,950,398	3,026,579	11·65

" *Difference between Estimated and Enumerated Population*

"Had the rate of increase remained as it was in 1871-81, the addition to the population would have amounted to 3,729,929, whereas it was in reality only 3,026,579; and, as official estimates of the population in the years following on an enumeration are based on the hypothesis that the preceding intercensal rate of growth has been maintained, the estimated population in April, 1891, was 703,350 in excess of the actual population. Such differences between estimates of this kind and reality are unavoidable when the interval between two consecutive enumerations is so long as a decennium.

"*The Factors that determine the Growth of the Population.*

"The growth of a population is determined by two factors, firstly, the balance between births and deaths, and secondly, the balance between emigration and immigration. Of these two, the former is in this country always a cause of increase, for the births invariably outnumber the deaths; while the latter is always a cause of decrease, for the emigrants are invariably more numerous than the immigrants. Such at any rate has been the case since 1851.

"The recent decline in the rate of growth may, therefore, be due to either of two causes, namely, a falling-off in the excess of births over deaths, that is, in the "natural increment," or to an increase in the excess of emigrants[1] over immigrants. As a matter of fact, it was due to both these causes, acting in combination.

"*Decline of Natural Increase and Increased Loss by Emigration.*

"For had the excess of births over deaths, or natural increase, been in the same proportion to the population as it was in the preceding decennium, the addition to the population from this cause would have amounted to 3,919,543, whereas it was in fact only 3,630,761, so that there was a falling-off of 288,782 under this heading. Again, had the loss by excess of emigrants borne the same proportion to the population as in 1871-81, the decrease under this heading would have been only 189,614, whereas the figures show that it must have amounted to no less than 604,182.

"These two deficiencies, namely, the 288,782 from diminished natural increase, and the 414,568 from increased excess of emigrants, together make up the 703,350, by which the enumerated population falls short of the number estimated on the hypothesis of a maintenance of the preceding intercensal growth.

"The decline in the natural increase was not due to increased mortality, for the mean annual death-rate in 1881-91 was lower than in any earlier decennium, but to a persistent decline in the birth-rate, which, as the following table shows, was unprecedently low:—

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[1] "'Emigrant' as used in this report includes:—(1.) Emigrants proper, that is, persons who have left the country to establish themselves outside Europe. (2.) Persons who have gone abroad as travellers, &c. (3.) Persons who have migrated from England and Wales to other parts of the United Kingdom. (4.) Any persons who died in the decennium, but whose deaths were not registered at the date of the enumeration.

"'Immigrant' of course is used to include the opposites of these groups.

Intercensal Periods.	Increase per Cent. by Births.	Decrease per Cent. by Deaths.	Gain per Cent. by Excess of Births over Deaths or Natural Increase.
1841-51	34·64	23·73	10·91
'51-61	36·19	23·58	12·61
'61-71	37·56	23·98	13·58
'71-81	37·89	22·80	15·09
'81-91	34·26	20·28	13·98

"It is only, however, as compared with 1871-81 that the natural increase shows any decline; as compared with any early decennium, it is still in excess.

"As regards the increased loss from excess of emigrants over immigrants, there are no means of ascertaining with accuracy in what degree it was due to increased emigration, and in what, if any, to diminished immigration. This much, however, is certain, that emigration was excessively active during the decennium, for while the number of persons of English or Welsh origin who left the United Kingdom for places outside Europe in the interval between the enumerations of 1871 and 1881 was, so far as could be ascertained by the Board of Trade, 996,038, the number in the next intercensal period rose to 1,571,856. The loss to the population by the excess of emigration amounted, as already stated, to 604,182, and, as the following table shows, was very considerably greater than the aggregate losses in the three previous decennia.

Census Years.	Population.		Difference—being Loss by Excess of Emigration over Immigration.	Increase* per Cent. in previous Decennium.		Difference—being Loss by Excess of Emigration over Immigration.
	As determined by Natural Increment only.	As actually Enumerated.		As determined by Natural Increment only.	As determined by actual Enumeration.	
1861	20,188,335	20,066,224	122,111	12·61	11·93	0·68
'71	22,791,234	22,712,266	78,968	13·58	13·19	0·39
'81	26,138,746	25,974,439	164,307	15·09	14·36	0·73
'91	29,605,200	29,001,018	604,182	13·98	11·65	2·33

* The rates of increase in this table refer to the intervals between the several censuses without correction for the very slight inequalities of the periods.

"*Population in each Intercensal Year.*

"It is desirable, for many purposes, to know what was the probable population of the country in each of the intercensal years, as well as in the census years themselves. If it be assumed that the rate of growth was uniform throughout the whole decennium, and that this rate of growth continued to the middle of the present year, the population of England and Wales in the middle of each year was as follows:—

1881	26,046,112
'82	26,334,776
'83	26,626,639
'84	26,921,737
'85	27,220,105
'86	27,521,780
'87	27,826,798
'88	28,135,197
'89	28,447,014
'90	28,762,287
'91	29,081,047

"*Proportion of Males and Females.*

"Of the 29,001,018 persons enumerated, 14,050,620 were males and 14,950,398 were females. This gives an excess of 899.778 females, an excess which would, however, be considerably reduced were the Army, the Navy, and the Merchant Service abroad not excluded from the reckoning.

"To each 100 males enumerated there were 106·4 females. The proportion of females to males has been steadily increasing at each census since 1851, having been successively 104·2, 105·3, 105·4, 105·5, and 106·4 to 100.

"The rate of increase in the last decennium was 11·2 per cent. for males, and 12·1 per cent. for females. But the 'natural increment' of the males, that is the number of male births *minus* the number of male deaths, was 1,821,366, or 14·5 per cent. of the male population in 1881, while the natural increment of the females was 1,809,395, or 13·6 per cent. of the female population. From this it follows that the 604,182 persons who constituted the balance of emigrants over immigrants consisted of 410,648 males and 193,534 females, and that the increased proportion of females in the population was due entirely to the excess of male emigrants. Had there been neither emigration nor immigration, the females would have been only 104·7 to 100 males.

	Males.	Females.
Persons enumerated in 1881	12,639,902	13,334,537
Births *minus* deaths (April, 1881—April, 1891)	1,821,366	1,809,395
Population in 1891, by natural increase	14,461,268	15,143,932
Population in 1891, as enumerated	14,050,620	14,950,398
Difference, or excess of emigrants over immigrants	**410,648**	**193,534**

"*Number of Families.*

"According to the instructions given to the enumerators every occupier of a tenement, whether such tenement consisted of an entire house, or of an apartment or part of a house, was to have a separate schedule for himself and family, and thus the number of schedules collected should tally with the number of families, or separate establishments. It is, however, to say the least very doubtful whether this instruction was rigidly observed by the enumerators, and it is certain that in very many cases lodgers, occupying separate apartments, if they received separate schedules, did not make use of them, but were returned as members of their landlord's family. The number of separate occupiers must therefore be in excess of the number of schedules. As, however, a similar under-statement of occupiers doubtlessly occurs in every enumeration, the figures may be used for purposes of comparison, without much risk.

"The number, then, of schedules collected in 1891 was 6,146,901, showing an increase of 513,709, or 9·1 per cent. upon the number collected in 1881. This increase is considerably less than that of the population, of which the growth was 11·7 per cent.; and, while the average number of individuals in a family was 4·61 in 1881, in 1891 it had apparently risen, in spite of the diminished birth-rate and marriage-rate, to 4·72. The change is but slight, but seems to point to an increasing understatement of occupiers.

"*Number of Houses.*

"As regards houses there is a similar uncertainty to that concerning families. The instruction to the enumerators was that they should consider every building that was separated from the next adjoining building by an unbroken party wall, and such only, to be a separate house. There is, however, very good reason for believing that this instruction was not universally observed, and that often a block of buildings, consisting according to the definition of several distinct houses, was treated as a single house, while on the other hand portions of one and the same house, held as different tenements, were often counted as separate houses. There is, moreover, very good ground for believing that the introduction into the enumeration book of a new column, in which particulars were to be inserted as to the number of rooms in a tenement, has, by confusing the enumerator, materially added to the frequency of these errors, so that the figures must be received with some reservation.

"Taking them, however, as they stand, the inhabited houses numbered 5,460,976, showing an increase of 629,457, or of 13·0 per cent. upon the number returned in 1881.

"While the inhabited houses underwent this increase, the number of uninhabited houses and of houses in process of construction actually declined. Of the former there were 380,117, and of the latter 38,407, whereas in 1881 the numbers had been respectively 386,676 and 46,414.

"The average number of occupants to each inhabited house was 5·31, against 5·38 in 1881, and 5·33 in 1871.

"*Rate of Increase and Decrease in different Areas.*

"The increase of population was by no means equably spread over the country. In 271 of the 632 registration districts into which England and Wales are divided for registration purposes the returns show an actual falling-off in the number of inhabitants, and in 202 out of these 271 districts there had also been a decline of population between 1871 and 1881.

"Even when larger areas, such as counties, are taken, there are some in which the population declined, while in the remainder the rates of increase were excessively unequal.

"In the following table the counties are arranged in the order of increase and decrease in the last decennium.

Table of Counties.

Counties showing Increase.	Increase per Cent. 1881-91.	Counties showing Increase.	Increase per Cent. 1881-91.	Counties showing Increase.	Increase per Cent. 1881-91.	Counties showing Decrease.	Decrease per Cent. 1881-91.
Essex	36·3	Yorkshire, W. Riding	12·2	Denbighshire	5·4	Carnarvonshire	0·9
Glamorganshire	34·4	Sussex	12·2	Buckinghamshire	5·1	Brecknockshire	1·2
Surrey	20·5	Middlesex	11·3	Gloucestershire	4·8	Cornwall	2·4
Monmouthshire	19·5	Northamptonshire	10·9	Devonshire	4·7	Anglesey	2·6
Durham	17·2	Staffordshire	10·4	Carmarthenshire	4·6	Huntingdonshire	2·9
Kent	16·8	Yorkshire, E. Riding	9·4	Oxfordshire	3·6	Pembrokeshire	2·9
Northumberland	16·7	Berkshire	9·2	Suffolk	3·5	Rutlandshire	3·6
Hampshire	16·3	Warwickshire	9·2	Somersetshire	3·2	Flintshire	4·0
Leicestershire	16·3	Worcestershire	8·8	Westmorland	3·0	Herefordshire	4·3
Derbyshire	14·3	Hertfordshire	8·4	Norfolk	2·7	Shropshire	4·7
Lancashire	13·7	Bedfordshire	7·5	Wiltshire	2·3	Merionethshire	5·3
Nottinghamshire	13·7	Cumberland	6·3	Dorsetshire	1·8	Radnorshire	7·4
Cheshire	13·4	Yorkshire, N. Riding	6·3	Cambridgeshire	1·7	Cardiganshire	10·9
				Lincolnshire	0·6	Montgomeryshire	11·7

"Speaking generally, the counties in which the rates of increase were highest are counties which are largely affected by the presence of London, namely, Essex, Surrey, and, in a lesser degree, Middlesex and Kent; or counties in which coal-mining is the predominant industry, such as Glamorganshire, Monmouthshire, Durham, and Northumberland. Then follow the manufacturing counties, while last of all come the rural counties, with rates of increase far below the general average, or with actual decrease. Of the fourteen counties that show a decrease, ten, namely, Brecknockshire, Pembrokeshire, Radnorshire, Montgomeryshire, Cardiganshire, Cornwall, Huntingdonshire, Rutlandshire, Herefordshire, and Shropshire also showed declines in 1881.

"There was a decline in no less than nine of the twelve Welsh counties, but, notwithstanding this, so great was the growth in Glamorganshire, that the rate of increase for Wales as a whole was almost precisely the same as for England.

"The counties to which the figures given above refer are the old historical areas, that is, the areas which are ordinarily meant when the term county is used. But there are also other areas that are designated by the same title, namely, the registration or union counties, which are aggregates of registration districts or poor law unions, and, since the passing of the Local Government Act of 1888, the administrative counties. These latter differ from the ancient counties, firstly, in that certain urban sanitary districts which lie partly in one and partly in another ancient county are for administrative purposes included in that county which contains the larger portion of the population, and secondly, in that many of the larger towns have been made into county boroughs, and have administrative powers of their own. The differences in population between these three kinds of county are often very considerable; and care must be taken by those who use the census figures not to confound them together. The population, for instance, of the ancient county of Derby is 527,886, while that of the registration county is 432,414, and that of the administrative county only 426,621.

"*Urban and Rural Populations.*

"The terms urban and rural are habitually used without any such precise meaning as would enable a clear line of demarcation to be drawn between the two. For statistical purposes, however, some strict definition must be adopted; and probably it will be best, as certainly it will be most convenient, to define the urban population as the aggregate inhabitants of London and the urban sanitary districts, the remainder of the population constituting the rural population.

"At the time of the census in 1881 there were, in addition to London, 966 urban sanitary districts. In the interval between that date and the census of 1891 some of these urban districts had been amalgamated with each other, one or two had been reduced to rural districts, while many new ones had been constituted, the general result being that in April, 1891, there were 1,006 urban districts, London being for convenience reckoned as one.

"Of these, six had populations exceeding 250,000; in eighteen the population was between 100,000 and 250,000; in thirty-eight between 50,000 and 100,000; in 120 between 20,000 and 50,000; in 176 between 10,000 and 20,000; in 453 between 3,000 and 10,000; while in the remaining 195 it was under 3,000. These last, or many of them, can perhaps scarcely be considered as towns or as more than villages; but their aggregate population is so small as compared with that of the entire 1,006 districts, that it is not worth while excluding them from the list, and so departing from the simple definition of urban that was adopted above.

Urban Sanitary Districts, with Population of—	Number of Districts.	Aggregate Population.		Mean Percentage of Increase of Population, 1881-91.
		1881.	1891.	
250,000 and upwards....	6*	5,843,406	6,375,645	9·1
100,000 to 250,000	18	2,345,356	2,793,625	19·1
50,000—100,000	38	2,124,754	2,610,976	22·9
20,000— 50,000	120	2,984,074	3,655,025	22·5
10,000— 20,000	176	2,010,812	2,391,076	18·9
3,000— 10,000	453	2,379,940	2,609,141	9·6
Under 3,000	195	357,832	367,282	2·6
Total	1,006	18,046,174	20,802,770	15·3

* Including the Administrative County of London, which is here reckoned as one district.

"The aggregate population of these 1,006 urban districts amounted to 20,802,770; so that no less than 71·7 per cent. of the total population of England and Wales were living in districts that had been considered sufficiently urban in character to be invested with the powers of urban sanitary authorities; the division of the people being as follows:—

	Population.	Per Cent.
Urban	20,802,770	71·7
Rural	8,198,248	28·3
Total	29,001,018	100·0

"The population, in 1881, of these 1,006 urban districts, a certain number of which, however, were not urban at that date, was 18,046,174, so that the increase in these urban districts in the course of the decennium amounted to 15·3 per cent., while the increase among the inhabitants of the rest of the country was only 3·4 per cent.; and these figures may be taken as representing with sufficiently approximate accuracy the respective increases in the urban and the rural populations.

"The urban population increases, then, very much more rapidly than the rural population. And not only so, but the larger, or rather the more populous, the urban district, and the more decided, therefore, its urban character, the higher, speaking generally and with many individual exceptions, is its rate of growth. This is well seen in the table given on the preceding page, where the urban districts are grouped by their populations. At the bottom of the list are the districts with less than 3,000 inhabitants, districts, as already mentioned, often only urban in name; and in these the rate of increase was only 2·6 per cent. Next above this group come the districts with populations up to 10,000, here the rate was 9·6; in the next higher group the rate was 18·9, and so on successively until the districts with from 50,000 to 100,000 inhabitants are reached, and here the rate was 22·9 per cent., and at its maximum. After this, in the still more populous towns, the rate becomes smaller, in the highest group of all being only 9·1 per cent. This appears a contradiction to the statement made above that the growth is generally most rapid in the most populous towns, but the contradiction is probably, or at any rate possibly, only apparent, and to be explained by the fact that in these excessively populous towns there is no longer space for internal growth, and that newcomers have to settle outside the municipal or official boundary, and so are not reckoned in the population.

"*Towns with more than* 50,000 *Inhabitants.*

"Among the towns are sixty-two with more than 50,000 inhabitants. The following is a list of these, arranged in the order of their populations. In some cases the boundaries of the towns have been extended since 1881, and when such is the case the population given for 1881 is the population at that date of the area as now extended.

Urban Sanitary Districts, or Towns.	Enumerated Population.		Increase per Cent.
	1881.	1891.	1881-91.
62 Towns	10,294,866	11,759,871	14·2
London	3,815,544	4,211,056	10·4
Liverpool*	552,508	517,951	−6·3
Manchester*	462,303	505,343	9·3
Birmingham	400,774	429,171	7·1
Leeds	309,119	367,506	18·9
Sheffield	284,508	324,243	14·0
Bristol....................	206,874	221,665	7·1
Bradford*	194.495	216,361	11·2
Nottingham	186,575	211,984	13·6
West Ham	128,953	204,902	58·9

* See note at the end of the table.

Urban Sanitary Districts, or Towns.	Enumerated Population.		Increase per Cent.
	1881.	1891.	1881-91.
Kingston-upon-Hull*	165,690	199,991	20·7
Salford	176,235	198,136	12·4
Newcastle-on-Tyne	145,359	186,345	28·2
Portsmouth	127,989	159,255	24·4
Leicester	122,376	142,051	16·1
Oldham	111,343	131,463	18·1
Sunderland	116,542	130,921	12·3
Cardiff	82,761	128,849	55·7
Blackburn	104,014	120,064	15·4
Brighton	107,546	115,402	7·3
Bolton	105,414	115,002	9·1
Preston*	96,537	107,573	11·4
Croydon	78,811	102,697	30·3
Norwich	87,842	100,964	14·9
Birkenhead	84,006	99,184	18·1
Huddersfield*	86,502	95,422	10·3
Derby	81,168	94,146	16·0
Swansea*	76,430	90,423	18·3
Ystradyfodwg	55,632	88,350	58·8
Burnley*	63,339	87,058	37·4
Gateshead	65,803	85,709	30·3
Plymouth	73,794	84,179	14·1
Halifax	73,630	82,864	12·5
Wolverhampton	75,766	82,620	9·0
South Shields	56,875	78,431	37·9
Middlesbrough	55,934	75,516	35·0
Walsall*	59,402	71,791	20·9
Rochdale	68,866	71,458	3·8
Tottenham	36,574	71,336	95·0
St. Helens	57,403	71,288	24·2
Stockport	59,553	70,253	18·0
Aston Manor	53,842	68,639	27·5
York*	61,789	66,984	8·4
Southampton	60,051	65,325	8·8
Leyton*	27,026	63,106	133·5
Willesden	27,613	61,266	121·9
Northampton	51,881	61,016	17·6
Reading*	48,769	60,054	23·1
West Bromwich	56,295	59,489	5·7
Merthyr Tydfil	48,861	58,080	18·9
Ipswich	50,546	57,260	13·3
Bury*	54,717	57,206	4·5
Wigan	48,194	55,013	14·1
Hanley	48,361	54,846	13·4
Devonport	48,939	54,736	11·8
Newport* (Mon.)	38,469	54,695	42·2
Warrington*	42,552	52,742	23·9
Coventry*	44,831	52,720	17·6
Hastings	42,258	52,340	23·9
Grimsby*	40,010	51,876	29·7
Bath	51,814	51,843	0·1
Barrow-in-Furness*	47,259	51,712	9·4

* The areas of these towns were extended in the decennium 1881-91, but in every case the population in 1881 relates to the town as constituted in 1891.

"The rates of increase differ enormously in the different towns, and while there are some in the immediate neighbourhood of London, as Tottenham, Leyton, and Willesden, which have doubled or more than doubled, their populations during the decennium, there are others in which the increase has been considerably less than that of the country at large. In all, however, with one exception, there has been some amount of increase. This exception is Liverpool, in which great city, the next after London in population, there has been a decline of 6·3 per cent.

"It must not be supposed that a falling-off in the rate of increase, or even an actual decline in the population of a great town, implies any corresponding decline in its prosperity. It may, indeed, imply the very opposite. For it may be that the limited area within the official boundary of the town has become too valuable for ordinary residence, and that warehouses and business premises have taken the place of dwelling-houses; the displaced inhabitants, as also the new-comers, settling themselves outside the recognised town limits. This process, as is well known, has long been going on in the central districts of London, where the resident population has diminished with each successive census; and doubtlessly it has been going on, if in a less conspicuous degree, in other cities. Thus the real growth of a great town can oftentimes only be properly estimated if the official boundaries are ignored and the ring of suburbs be included within its area. The case of Manchester illustrates this. In 1881 it was found that of the twenty great towns, which at that date had a place in the Registrar-General's weekly return, Manchester was the only one in which the population had declined in the preceding decennium, the falling-off being 2·8 per cent. But in the interval between the enumerations of 1881 and 1891 the municipal area of Manchester was extended so as to include the former suburbs, and the population of this wider area, so far from having fallen off in 1871-81 by 2·8 per cent., had in reality increased by some 8 or 9 per cent. so nearly as can be estimated, and now in 1881-91 has further increased by another 9·3 per cent. A similar change would occur in the figures for Liverpool if the excessively restricted municipal area of that city were extended so as to include the suburbs; for, while the municipal population has been declining, the population in these extra-municipal suburbs has increased by somewhat more than 60 per cent., and the population of the whole area, municipal and suburban together, has gone up 5·9 per cent. during the decennium.[2]

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[2] "In making the above calculation, the following areas have been taken as approximately representing the suburbs: The sub-districts of Crosby and Litherland, with the parishes of Bootle, Walton-on-the-Hill, and Wavertree, and the extra-municipal parts of West Derby and Toxteth Park.

"*County Boroughs.*

"In a schedule to the Local Government Act of 1888 a list of large boroughs is given, to which were granted by that Act the position of administrative counties and the title of county boroughs; these boroughs being stated to be either counties of themselves or to have had on 1st June, 1888, populations of not less than 50,000. To the boroughs thus scheduled have since been added by order two others, namely, Oxford and Grimsby, raising the total number of county boroughs to sixty-three. Among these are ten in which the population enumerated in April last did not reach 50,000, namely, Bootle, Canterbury, Chester, Dudley, Exeter, Gloucester, Lincoln, Oxford, Worcester, and Yarmouth; while on the other hand, there are in the list of urban sanitary districts two boroughs, namely,[3] Newport (Mon.) and Warrington, and six non-municipal urban districts, namely, Ystradyfodwg, Tottenham, Aston Manor, Leyton, Willesden, and Merthyr Tydfil, in each of which the population now exceeds 50,000.

"*London.*

"The population of London, meaning thereby the London of the Registrar-General, which with an insignificant exception,[4] coincides with the administrative county of London, was 4,211,056, showing an increase of 395,512, or 10·4 per cent. upon the population of 1881. Thus the population of London increased in a somewhat lower ratio than the population of England and Wales as a whole; and the fact is notable, inasmuch as it is the first time that such a phenomenon has presented itself, London having been found in every preceding intercensal period to have gained more or less in its proportions as compared with the country at large.

Year of Enumeration.	Population in England and Wales and in London at the Ten Enumerations.		
	England and Wales.	London.	Persons in London to 100 in England and Wales.
1801	8,892,536	958,863	10·78
'11	10,164,256	1,138,815	11·20
'21	12,000,236	1,378,947	11·49
'31	13,896,797	1,654,994	11·91
'41	15,914,148	1,948,417	12·24
'51	17,927,609	2,362,236	13·18
'61	20,066,224	2,803,989	13·97
'71	22,712,266	3,254,260	14·33
'81	25,974,439	3,815,544	14·69
'91	29,001,018	4,211,056	14·52

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[3] "By an order already issued, Newport will become a county borough in November next.

[4] "The civil parish of Penge is included in the administrative county of London but not in registration London.

"It was pointed out in the last census report that in the centre of London was a group of districts in which the population had long been undergoing decrease, owing to the substitution of business premises for dwelling-houses; and that round this central area, and constituting the rest of registration or inner London, was a circle or ring of districts, all of which had undergone more or less rapid increase, the growth, speaking generally, being greater the farther the district was from the centre, and the rate of growth, it may be added, showing in most cases a tendency to become smaller and smaller; and, lastly, that outside this registration London was a wide belt of suburban districts, conveniently designated the outer ring, in which the population was increasing with extraordinary rapidity.

"All these phenomena are repeated in the present enumeration. All the central districts that showed decreases in 1861-71 and in 1871-81 showed, with one exception, further decrease in 1881-91. The exception was Whitechapel, which, after declining 3·0 per cent. in 1861-71 and 6·8 per cent. in 1871-81, showed an increase of 4·3 per cent. in the next decennium, probably owing to an additional influx of foreigners. On the other hand, two of the districts in the inner ring which had previously shown increases, namely, St. Pancras and Stepney, are now added to the list of districts in which the population is declining.

"The following table shows the changes in these central districts in the last three decennia:—

Districts in Central Area.	Decrease per Cent.			Districts in Central Area.	Decrease per Cent.		
	1861-71.	1871-81.	1881-91.		1861-71.	1871-81.	1881-91.
St. George, Hanover Sq.	0·0	4·2	10·4	Holborn	2·5	7·1	6·8
Westminster	3·0	9·1	19·9	London City	33·0	32·3	25·5
Marylebone	1·5	2·7	8·1	Shoreditch	1·7	0·5	2·0
St. Pancras*	+11·4	+6·7	0·8	St. George-in-the-East	1·7	1·9	3·4
St. Giles	1·0	15·6	12·1	Stepney*	+2·0	+1·5	1·6
Strand	14·3	18·8	18·2				

* In these districts the population decreased in the last decennium only.

"The total decrease in this central group of districts in 1881-91 was 7·2 per cent.; having been 2·7 and 4·6 per cent. in the two next preceding decennia; the whole decrease in the thirty years amounting to 13·9 per cent. It will be noticed that the rate of decrease has become larger and larger with each successive decennium.

"In all the remaining districts of registration or inner London, of which the following table gives particulars, there was as already said, an increase, this increase being, as a rule, only slight in such districts as border on the central area, but very large in such as are more remote. Taking the whole group together, the increase in the ten years amounted to 17·5 per cent., having been 29·8 and 29·3 per cent. in the two next preceding decennia; so that here also, as well as in the central area, there has been gradually diminishing growth.

Other Districts of Inner London.	Increase per Cent. 1861-71.	1871-81.	1881-91	Other Districts of Inner London.	Increase per Cent. 1861-71.	1871-81.	1881-91.
Paddington	27·7	10·6	10·1	Poplar	46·9	34·5	6·5
Kensington	71·6	35·6	1·9	St. Saviour, Southwark	0·7	11·5	3·8
Fulham	64·9	74·0	64·5	St. Olave, Southwark	20·1	10·0	1·4
Chelsea	11·5	24·6	9·2	Lambeth	28·6	21·8	8·5
Hampstead	69·0	40·8	50·5	Wandsworth	77·6	68·3	46·1
Islington	37·6	32·3	12·9	Camberwell	55·7	67·6	26·1
Hackney	50·0	49·2	23·1	Greenwich	17·0	30·4	26·0
Bethnal Green	14·3	5·7	1·7	Lewisham	61·2	42·2	30·0
Whitechapel*	−3·0	−6·8	4·3	Woolwich†	−2·8	10·2	32·8
Mile End Old Town	27·5	13·3	1·8				

* In this district the population increased in the last decennium only.

† In this district the population decreased in the decennium 1861-71.

"The same tendency to diminution in the rate of growth is visible, though to a much smaller degree, in the population of the outer ring, that is to say, in that belt of suburban districts which lie outside the boundary of registration London, but are included in the Metropolitan police district. Here the increase in 1861-71 was 50·8 per cent.; in the next decennium, 1871-81, it declined slightly, falling to 50·5 per cent.; while in 1881-91 the fall became more distinct, and the rate was only 49·5. It would thus appear that even this wide belt of suburbs is beginning to show some signs of repletion; and possibly were we to extend the inquiry to a still wider radius, we should find that there was a further ring of districts, outside the metropolitan police area, in which the gradual filling up of the central areas was causing more and more active growth.

	Population. 1861.	1871.	1881.	1891.	Rates of Increase or Decrease per Cent. 1861-71.	1871-81.	1881-91.
Central area	1,187,687	1,155,462	1,101,994	1,022,529	− 2·7	− 4·6	− 7·2
Rest of inner London	1,616,160	2,098,323	2,713,550	3,188,527	+ 29·8	+ 29·3	+ 17·5
Inner or registration London	2,803,847	3,253,785	3,815,544	4,211,056	+ 16·0	+ 17·3	+ 10·4
Outer ring	418,873	631,856	951,117	1,422,276	+ 50·8	+ 50·5	+ 49·5
Greater London	3,222,720	3,885,641	4,766,661	5,633,332	+ 20·6	+ 22·7	+ 18·2

"*Parliamentary Areas.*

"The number of members of the House of Commons for England and Wales, irrespective of the universities, being 490, and the enumerated population being 29,001,018, an equal numerical distribution would give one member to 59,186 persons. The figures in Table 3 (not given in this extract) show how far on either side the actual distribution departs from such equality. Taking the extreme limits, there are, among the single member constituencies, seven in which the population is under 18,000, namely, Durham, Pontefract, Bury St. Edmunds, Grantham, Salisbury, Montgomery District of Boroughs, and Penryn with Falmouth, while on the other hand there are also seven with populations above 100,000, namely, Cardiff District of Boroughs, Wandsworth, West Ham (South), Romford Division of Essex, Croydon, Deptford, and the Walthamstow Division of Essex.

"In the following table the constituencies are grouped according to the proportion between their population and their members, and the number of constituencies in each group is given :—

Population to One Representative.	Number of Constituencies.
100,000 and upwards	7
90,000—100,000	19
80,000— 90,000	26
70,000— 80,000	66
60,000— 70,000	108
50,000— 60,000	128
40,000— 50,000	79
30,000— 40,000	23
20,000— 30,000	19
10,000— 20,000	15
Total	490

"*Population of the United Kingdom.*

"So far this report has referred exclusively to England and Wales, that is, to that portion alone of the kingdom in which the enumeration was carried out under our immediate superintendence. By the courtesy, however, of our colleagues in Scotland and Ireland, and with the assistance of the enumeration books forwarded to us for compilation by the respective governors of the Isle of Man and the Channel Islands, we are enabled to submit in summary, subject to any future correction of the, as yet, unrevised figures, tables showing the population of the United Kingdom and of the islands in the British seas on the night of the census.

"The total population of the United Kingdom consisted on 6th April last of 37,740,283 persons. This was an increase of

2,855,435 upon the enumerated population in 1881, and was equivalent to an average daily addition of 781 persons to the community throughout the decennium, the daily addition having been 931 in 1871-81 and 701 in 1861-71.

Enumerated Population of the United Kingdom at successive Censuses, 1821-91.

	1821.	1831.	1841.	1851.	1861.	1871.	1881.	1891.
United Kingdom	20,893,584	24,028,584	26,730,929	27,390,629	28,927,485	31,484,661	34,884,848	37,740,283
England	11,281,883	13,090,523	15,002,443	16,921,888	18,954,444	21,495,131	24,613,926	27,482,104
Wales	718,353	806,274	911,705	1,005,721	1,111,780	1,217,135	1,360,513	1,518,914
Scotland	2,091,521	2,364,386	2,620,184	2,888,742	3,062,294	3,360,018	3,735,573	4,033,103
Ireland	6,801,827	7,767,401	8,196,597	6,574,278	5,798,967	5,412,377	5,174,836	4,706,162

"*Rate of Increase in the Decennium.*

"The decennial rate of increase was 8·2 per cent., and lower than in either of the two next preceding decennia, in which it had been successively 8·8 and 10·8 per cent. The falling-off in the rate of growth was shared by all the divisions of the kingdom, but unequally; the smallest decline of growth being in Wales, where the increase was only very slightly lower than it had been in the previous decennium, falling merely from 11·8 to 11·6 per cent.; while the greatest change was in Ireland, where the population declined no less than 9·1 per cent., the decline in the two previous decennia having been respectively 6·7 and 4·4 per cent.

Increase or Decrease per Cent. of the Population in successive Intercensal Periods.

	1821-31.	1831-41.	1841-51.	1851-61.	1861-71.	1871-81.	1881-91.
U.Kingdom	15·0	11·2	2·5	5·6	8·8	10·8	8·2
England	16·0	14·6	12·8	12·0	13·4	14·5	11·7
Wales	12·2	13·1	10·3	10·5	9·5	11·8	11·6
Scotland	13·0	10·8	10·2	6·0	9·7	11·2	8·0
Ireland	14·2	5·5	−19·8	−11·8	− 6·7	− 4·4	− 9·1

Note.—Where no minus sign is prefixed the figures denote an increase.

"The population of England and Wales now forms 72·8 per cent., or nearly three-quarters of the total population of the United Kingdom, the proportion borne by it having increased uninterruptedly in each successive decennium. The population of Scotland constitutes 10·7 per cent. of the whole, which was also the proportion borne by it at each of the two preceding enumerations. On the other hand the inhabitants of Ireland, who in 1821 and 1831 were nearly one-third of the aggregate population, now form only 12·5 per cent., or one-eighth of it.

Proportion per Cent. of the Population residing in different parts of the Kingdom.

	1821.	1831.	1841.	1851.	1861.	1871.	1881.	1891.
England	54·0	54·5	56·1	61·8	65·5	68·3	70·6	72·8
Wales	3·4	3·4	3·4	3·7	3·8	3·8	3·9	4·0
Scotland	10·0	9·8	9·8	10·5	10·6	10·7	10·7	10·7
Ireland	32·6	32·3	30·7	24·0	20·1	17·2	14·8	12·5

"*Islands in the British Seas.*

"The population of the Isle of Man, which in 1881 was found to have declined 0·9 per cent. in the preceding decennium, is now returned as 55,598, showing an increase of 2,040, or 3·8 per cent.

"A similar change has occurred in the case of Jersey. For here also there was a decline of 7·4 per cent. between 1871 and 1881, whereas the present population, numbering 54,518, shows an increase in the decennium of 4·0 per cent. In Guernsey the population which in 1881 had increased by 6·4 per cent. now shows a further increase of 8·3 per cent., and numbers 35,339 persons. It is only in the small islet of Alderney that there has been any

Population of the Islands in the British Seas Enumerated at each of the Censuses, 1821 to 1891.

	1821.	1831.	1841.	1851.	1861.	1871.	1881.	1891.
Islands in the British seas	89,508	103,710	124,040	143,126	143,447	144,638	141,260	147,870
Isle of Man	40,081	41,000	47,975	52,387	52,469	54,042	53,558	55,598
Channel Islands—								
Jersey	28,600	36,582	47,544	57,020	55,613	56,627	52,445	54,518
Guernsey (with Herm and Jethou)	20,339	24,540	26,698	29,806	29,850	30,685	32,638	35,339
Alderney........................	—*	1,045	1,038	3,333	4,932	2,738	2,048	1,843
Sark	488	543	785	580	583	546	571	572

* No return.

decline in the last decennium, but the inhabitants of this islet are so few, only 1,843, that this change scarcely affects the aggregate for the islands in the British seas, which has increased 4·7 per cent., and consists of 147,870 persons.

Increase or Decrease per Cent. of the Population of the Islands in the British Seas in successive Intercensal Periods.

	1821-31.	1831-41.	1841-51.	1851-61.	1861-71.	1871-81.	1881-91.
Islands in the British seas....	15·9	19·6	15·4	0·2	0·8	− 2·3	4·7
Isle of Man	2·3	17·0	9·2	0·2	3·0	− 0·9	3·8
Channel Islands—							
Jersey	27·9	30·0	19·9	−2·5	1·8	− 7·4	4·0
Guernsey (with Herm and Jethou)	20·7	8·8	11·6	0·1	2·8	6·4	8·3
Alderney............................	....*	−0·7	321·1	48·0	−44·5	−25·2	−10·0
Sark....................................	11·3	44·6	−26·1	0·5	− 6·3	4·6	− 0·2

* No return.

Inhabited Houses and Population in the COUNTIES *in England and Wales in* 1881 *and* 1891.

County.	Area in Statute Acres.	Inhabited Houses.		Population.	
		1881.	1891.	1881.	1891.
England and Wales	37,239,351	4,831,519	5,460,976	25,974,439	29,001,018
England	32,527,070	4,557,290	5,157,781	24,613,934	27,482,104
Wales	4,712,281	274,229	303,195	1,360,505	1,518,914
ENGLAND.					
Bedfordshire	294,983	31,529	34,778	149,567	160,729
Berkshire	462,210	43,489	48,466	218,363	238,446
Buckinghamshire	477,151	37,528	40,091	176,155	185,190
Cambridgeshire	524,935	40,316	42,000	185,706	188,862
Cheshire	657,123	126,258	145,478	644,040	730,052
Cornwall........................	863,665	69,790	70,656	330,686	322,589
Cumberland	970,161	49,050	52,395	250,647	266,550
Derbyshire	658,624	92,783	105,650	461,746	527,886
Devonshire	1,655,208	106,363	113,133	603,654	631,767
Dorsetshire....................	627,265	39,778	40,919	190,969	194,487
Durham	647,592	147,145	168,627	867,576	1,016,449
Essex	987,032	108,974	146,173	576,434	785,399
Gloucestershire	783,699	108,692	116,263	572,341	599,974
Hampshire	1,037,764	110,431	129,894	593,465	690,086
Herefordshire................	532,918	25,642	25,314	121,249	115,986
Hertfordshire................	405,141	41,293	45,323	203,140	220,125
Huntingdonshire	229,515	13,234	13,275	59,491	57,772
Kent	995,392	173,432	206,402	977,706	1,142,281

Inhabited Houses and Population in COUNTIES—*Contd.*

County.	Area in Statute Acres.	Inhabited Houses.		Population.	
		1881.	1891.	1881.	1891.
ENGLAND—*Contd.*					
Lancashire	1,208,154	655,306	765,460	3,454,438	3,926,798
Leicestershire	511,907	68,043	78,762	321,430	373,693
Lincolnshire	1,767,879	100,562	103,617	469,919	472,778
Middlesex	181,317	369,282	430,377	2,920,485	3,251,703
Monmouthshire	370,350	39,552	46,071	211,172	252,260
Norfolk	1,356,173	100,350	103,257	444,637	456,474
Northamptonshire	629,912	57,541	63,975	272,558	302,184
Northumberland	1,290,312	70,608	80,652	433,711	506,096
Nottinghamshire	527,752	82,435	95,130	391,815	445,599
Oxfordshire	483,621	38,107	39,900	179,559	185,938
Rutlandshire	94,889	4,537	4,486	21,434	20,659
Shropshire	844.565	50,719	49,686	248,022	236,324
Somersetshire	1,049,812	94,898	99,659	469,109	484,326
Staffordshire	748,433	187,646	210,052	981,009	1,083,273
Suffolk	944,060	78,424	81,497	356,893	369,351
Surrey	485,129	215,354	265,228	1,436,899	1,730,871
Sussex	933,269	87,837	100,574	490,505	550,442
Warwickshire	566,271	149,323	165,735	737,339	805,070
Westmorland	500,906	12,873	13,301	64,191	66,098
Wiltshire	866,677	55,678	57,477	258,970	264,969
Worcestershire	472,453	77,167	85,394	380,283	413,755
Yorkshire–East Riding	750,828	76,009	84,577	365,011	399,412
,, North ,,	1,361,664	68,956	73,366	346,317	368,237
,, West ,,	1,770,359	450,356	514,711	2,175,293	2,441,164
WALES.					
Anglesey	193,511	12,127	12,112	51,416	50,079
Brecknockshire	460,158	12,176	12,092	57,746	57,031
Cardiganshire	443,387	16,226	15,443	70,270	62,596
Carmarthenshire	594,405	25,919	27,078	124,864	130,574
Carnarvonshire	369,477	26,089	26,508	119,349	118,225
Denbighshire	425,038	23,591	24,716	111,957	117,950
Flintshire	161,807	17,219	16,839	80,441	77,189
Glamorganshire	516,959	92,083	121,025	511,433	687,147
Merionethshire	384,717	10,981	10,933	51,967	49,204
Montgomeryshire	495,089	13,581	12,590	65,710	58,003
Pembrokeshire	391,181	19,462	19,307	91,824	89,125
Radnorshire	276,552	4,775	4,552	23,528	21,791

SCOTLAND.

"The Census (Scotland) Act, 1890, 53 and 54 Vict., cap. 38, enacted that a census of the inhabitants of Scotland be taken upon Sunday, 5th April, 1891. For this purpose every registrar in Scotland was directed to have left at every dwelling-house within his district, during the course of the week ending on the Saturday next before the census day, a schedule as prepared under the direction of the Secretary for Scotland, for the occupier or occupiers thereof, to be filled up by the same, giving particulars regarding the name, relation to head of family, condition as to marriage, sex, age, profession or occupation, birth place of every living person who abode in every house on the night of the census day, if any such speaks Gaelic only, or both Gaelic and English, and also whether any person was from birth deaf and dumb, blind, a lunatic, imbecile or idiot.

"The enumerators collected the schedules, so filled up, and copied all the particulars into the enumeration books, which, with the schedules and other documents, were handed to the local registrars, who, after revising the work of the enumerators, prepared summaries of each district. These summaries together with all the enumeration and memorandum books, were then sent to the sheriffs of counties, and to the chief magistrates of the following towns,—Edinburgh, Glasgow, Dundee, Aberdeen, Greenock, Paisley, Leith, and Perth, not later than twenty-one days after the census day, and were by those authorities transmitted to the Registrar-General in Edinburgh on or before the 6th May. The householders' schedules were, on or before the 25th April, forwarded direct by the registrars to the Registrar-General, without passing through the hands of sheriffs or magistrates.

"From the summaries prepared by the registrars, the following tables have been drawn up, and the numbers which they exhibit are probably not far from being correct, but will no doubt hereafter acquire more precision when the systematic revision of the details of the census which is now being proceeded with in this office is completed. The schedules containing information as to the population on board shipping, both in the royal navy and in the mercantile marine, and who at the date of the census were in Scotland or on Scottish waters, the returns of which are not included in the registrars' summaries, were collected and forwarded to this office, in the one case through the Board of Admiralty, and in the other by the Registrar-General of Shipping, the schedules of the latter being collected by the officers of H.M. customs at the various ports of the United Kingdom.

"In one particular does the householders' schedule differ from that used at the census of 1881, and this is under the heading of profession or occupation. On the present occasion it has been considered advisable to obtain, if possible, fuller details than at former censuses upon this point, and accordingly information is requested as to whether an individual is an employer of others, is employed himself or herself, or is simply working on his or her own account; but as those facts are not required to be stated in the summaries, they do not come under consideration in this interim report.

"The definition of a house is in the present as in last census, viz., (1) every dwelling with a distinct *outside entrance* from a street, court, lane, road, &c., or (2) with a door opening directly into a *common stair;* but any such dwelling, if subdivided and occupied by different families, is reckoned as only a single house.

"The returns are made under the superintendence of the local registrars of births, deaths, and marriages throughout the country, whose districts in many instances do not correspond with civil parishes and counties; and, in consequence, the population of civil and registration counties, which are given on separate tables, have been only obtained with much labour, and in some cases corrections of the registrars' summaries.

"From the information now obtained we are enabled to state, that on the census day of the present year the population of all Scotland, including those in the royal navy and belonging to the mercantile shipping in Scottish ports or on Scottish waters, amounted to 4,033,103 persons, of whom 1,951,461 are males, and 2,081,642 females.

"Those numbers when compared with the corresponding as enumerated at the census 1881, show a total increase of 297,530, the male increase being 151,986 and the female 145,544. The percentage of increase of the population of Scotland during the last decennium has been 7·96, that of the male sex alone being 8·45, and of the female 7·52. These rates of increase, when compared with the corresponding of former periods, are found (with the exception for the decennium 1851-61) to be the lowest recorded since the census 1801-11.

"The population of Scotland is subdivided by the Registrar-General into five groups of registration districts, concerning whose population much tabular information is afforded in his various reports. They are — the principal town districts, large town districts, small town districts, mainland rural districts, and insular rural districts, and a study of their numbers obtained at the two census enumerations, 1881 and 1891, afford some information as to the movements now going on among the inhabitants of Scotland.

"In like manner some particulars regarding the recent progress of each of the principal towns may be gathered, from which it is to be inferred that the rate of increase or decrease among them was varied not a little. The greatest change is indicated in Paisley and Aberdeen, there being at the present census an increase in their populations, in the former to the extent of 19·39 per cent. and in the latter of 16·02 per cent., when compared with what they were at the 1881 census. In Glasgow the increase is at the rate of 10·62 per cent.; in Edinburgh, of 11·46 per cent.; in Dundee, of 9·26 per cent.; in Leith, of 14·55 per cent.; in Perth, of 3·37 per cent.; in Kilmarnock, of 8·10 per cent.; and in Glasgow, landward and suburban, of 30·04 per cent. On the other hand there is in Greenock a decrease at the rate of 4·97 per cent.

TABLE I.—*Population in the Divisions and Civil Counties in* 1881 *and* 1891. (*Including Shipping.*)

Divisions and Civil Counties.	1881. Population.			1891. Population.			Increase or Decrease per Cent. both Sexes.
	Males.	Females.	Total.	Males.	Females.	Total.	
SCOTLAND	1,799,475	1,936,098	3,735,573	1,951,461	2,081,642	4,033,103	8·0
DIVISIONS.							
I. Northern	57,248	66,736	123,984	54,370	63,880	118,250	−4·6
II. North-Western	80,879	88,122	169,001	79,504	86,609	166,113	−1·7
III. North-Eastern	200,568	218,865	419,433	207,158	227,454	434,612	3·6
IV. East-Midland	277,862	321,813	599,675	290,756	335,202	625,958	4·4
V. West-Midland	139,454	142,447	281,901	155,371	159,097	314,468	11·4
VI. South-Western	682,859	702,446	1,385,305	771,935	788,864	1,560,799	11·2
VII. South-Eastern	261,195	284,759	545,954	296,719	312,123	608,842	11·5
VIII. Southern	99,410	110,910	210,320	95,648	108,413	204,061	−3·0
I. NORTHERN.							
1. Shetland	12,656	17,049	29,705	12,190	16,521	28,711	−3·3
2. Orkney	14,982	17,062	32,044	14,282	16,156	30,438	−5·0
3. Caithness	18,391	20,474	38,865	17,463	19,698	37,161	−4·4
4. Sutherland	11,219	12,151	23,370	10,435	11,505	21,940	−6·1
II. NORTH-WESTERN.							
5. Ross and Cromarty	37,027	41,520	78,547	36,838	40,913	77,751	−1·0
6. Inverness	43,852	46,602	90,454	42,666	45,696	88,362	−2·3
III. NORTH-EASTERN.							
7. Nairn	4,979	5,476	10,455	4,682	5,337	10,019	−4·2
8. Elgin (or Moray)	20,725	23,063	43,788	20,358	23,090	43,448	−0·8
9. Banff	29,789	32,947	62,736	30,717	33,450	64,167	2·3
10. Aberdeen	128,097	139,893	267,990	133,799	147,532	281,331	5·0
11. Kincardine	16,978	17,486	34,464	17,602	18,045	35,647	3·4
IV. EAST-MIDLAND.							
12. Forfar	120,091	146,269	266,360	125,331	152,457	277,788	4·3
13. Perth	61,552	67,455	129,007	59,673	66,455	126,128	−2·2
14. Fife	80,893	91,038	171,931	89,112	98,208	187,320	9·0
15. Kinross	3,112	3,585	6,697	2,962	3,327	6,289	−6·1
16. Clackmannan	12,214	13,466	25,680	13,678	14,755	28,433	10·7
V. WEST-MIDLAND.							
17. Stirling	56,147	56,296	112,443	63,016	62,588	125,604	11·7
18. Dumbarton	37,312	38,021	75,333	46,935	47,576	94,511	25·5
19. Argyll	37,895	38,573	76,468	37,210	38,735	75,945	−0·7
20. Bute	8,100	9,557	17,657	8,210	10,198	18,408	4·3
VI. SOUTH-WESTERN.							
21. Renfrew	126,743	136,631	263,374	138,186	152,604	290,790	10·4
22. Ayr	106,819	110,700	217,519	110,888	113,334	224,222	3·1
23. Lanark	449,297	455,115	904,412	522,861	522,926	1,045,787	15·6
VII. SOUTH-EASTERN.							
24. Linlithgow	22,746	20,764	43,510	27,921	24,868	52,789	21·3
25. Edinburgh	183,915	205,249	389,164	215,494	228,561	444,055	14·1
26. Haddington	18,806	19,696	38,502	18,226	19,265	37,491	−2·6
27. Berwick	16,943	18,449	35,392	15,434	16,964	32,398	−8·5
28. Peebles	6,626	7,196	13,822	6,911	7,849	14,760	6·8
29. Selkirk	12,159	13,405	25,564	12,733	14,616	27,349	7·0
VIII. SOUTHERN.							
30. Roxburgh	25,436	28,006	53,442	24,973	28,753	53,726	0·5
31. Dumfries	36,024	40,116	76,140	34,842	39,466	74,308	−2·4
32. Kirkcudbright	19,807	22,320	42,127	18,879	21,100	39,979	−5·1
33. Wigtown	18,143	20,468	38,611	16,954	19,094	36,048	−6·6

TABLE II.—*Population of Scotland in* 1881 *and* 1891, *arranged in Five Groups of Districts, together with the Number of Houses, Families, and Rooms with Windows, in* 1891. (*Including Shipping.*)

Groups of Districts.	1881.			1891.							
	Population.			Number of Separate Families.	Houses.			Population.			Number of Rooms with one or more Windows.
	Males.	Females.	Total.		Inhabited.	Vacant.	Building	Males.	Females.	Total.	
Principal town districts …………	670,377	741,159	1,411,536	352,509	324,638	16,672	2,327	756,059	833,815	1,589,874	948,978
Large " …………	188,815	199,982	388,797	99,628	93,153	3,656	637	228,888	239,645	468,533	274,265
Small " …………	380,806	409,990	790,796	181,482	165,961	12,429	1,105	405,005	435,283	840,288	564,180
Mainland-rural districts…………	498,298	515,758	1,014,056	218,256	204,914	17,058	1,248	502,771	505,693	1,008,464	746,607
Insular-rural " …………	61,179	69,209	130,388	27,155	25,778	1,899	61	58,738	67,206	125,944	73,635
SCOTLAND…………………………	1,799,475	1,936,098	3,735,573	879,030	814,444	51,714	5,378	1,951,461	2,081,642	4,033,103	2,607,665

TABLE III.—*Increase or Decrease of Population in the Five Groups of Districts in Scotland between* 1881 *and* 1891, *and the Percentage of Increase or Decrease in Ten Years.*

Groups of Districts.	Increase or Decrease between 1881 and 1891.			Percentage of Increase or Decrease in Ten Years.		
	Males.	Females.	Both Sexes.	Males.	Females.	Both Sexes.
Principal town districts …………	85,682	92,656	178,338	12·78	12·50	12·63
Large " …………	40,073	39,663	79,736	21·22	19·83	20·51
Small " …………	24,199	25,293	49,492	6·35	6·17	6·26
Mainland-rural districts…………	4,473	– 10,065	– 5,592	0·90	– 1·95	– 0·55
Insular-rural " …………	– 2,441	– 2,003	– 4,444	– 3·99	– 2·89	– 3·41
SCOTLAND…………………………	151,986	145,544	297,530	8·45	7·52	7·96

TABLE IV.—*Population (according to Registration Districts) in the Principal Towns of Scotland in* 1881 *and* 1891, *together with the Number of Houses, Families, and Rooms with Windows, in* 1891. (*Including Shipping.*)

Towns.	1881.			1891.							
	Population.			Number of separate Families.	Houses.			Population.			Number of Rooms with one or more Windows.
	Males.	Females.	Total.		Inhabited.	Vacant.	Building.	Males.	Females.	Total.	
Glasgow	248,366	263,049	511,415	126,538	117,537	5,342	641	277,645	288,069	565,714	275,376
Edinburgh	107,006	127,396	234,402	60,102	51,079	3,485	526	119,237	142,024	261,261	212,308
Dundee	62,347	80,108	142,455	35,603	32,271	865	283	68,968	86,672	155,640	84,491
Aberdeen	48,231	56,845	105,076	27,898	26,372	1,245	79	56,087	65,818	121,905	84,836
Greenock	34,302	32,514	66,816	13,364	12,845	1,343	43	31,758	31,740	63,498	34,832
Leith	30,357	30,486	60,843	15,202	14,162	629	56	34,872	34,824	69,696	43,336
Paisley	25,838	29,800	55,638	13,810	13,631	631	49	30,665	35,762	66,427	33,732
Perth	13,854	15,902	29,756	6,851	6,455	291	4	14,113	16,647	30,760	24,042
Kilmarnock	12,607	13,257	25,864	5,977	5,759	132	28	13,649	14,310	27,959	14,901
Glasgow, landward & suburban	84,994	89,579	174,573	47,164	44,527	2,709	618	109,065	117,949	227,014	140,224

TABLE V.—*Increase or Decrease of Population in the Principal Towns of Scotland between* 1881 *and* 1891, *and the Percentage of Increase or Decrease in Ten Years.*

Towns.	Increase or Decrease between 1881 and 1891.			Percentage of Increase or Decrease in Ten Years.		
	Males.	Females.	Both Sexes.	Males.	Females.	Both Sexes.
Glasgow	29,279	25,020	54,299	11·79	9·51	10·62
Edinburgh	12,231	14,628	26,859	11·43	11·48	11·46
Dundee	6,621	6,564	13,185	10·62	8·19	9·26
Aberdeen	7,856	8,973	16,829	16·29	15·79	16·02
Greenock	– 2,544	– 774	– 3,318	– 7·42	– 2·38	– 4·97
Leith	4,515	4,338	8,853	14·87	14·23	14·55
Paisley	4,827	5,962	10,789	18·68	20·01	19·39
Perth	259	745	1,004	1·87	4·68	3·37
Kilmarnock	1,042	1,053	2,095	8·27	7·94	8·10
Glasgow, landward & suburban	24,071	28,370	52,441	28·32	31·67	30·04

IRELAND.

"In presenting this abstract we beg to state that the arrangements for taking the census of Ireland in 1891 were commenced in November, 1889, and that the plans for carrying out the work had been prepared, and all the preliminaries completed when the Commission was appointed on 24th November, 1890.

"The country was divided into 210 enumeration districts, each under the supervision of a district inspector of the Royal Irish constabulary, or an officer of the Dublin metropolitan police, to whom was assigned the duty of superintending the taking of the census. These superintendents of enumeration comprised 204 officers of the Royal Irish constabulary, and six officers of the Dublin metropolitan police. Each superintendent had under his direction a certain number of enumerators amounting in the total to 4,162—viz., 4,012 sergeants or constables of the Royal Irish constabulary, and 150 sergeants or constables of the Dublin metropolitan police.

"We have much pleasure in stating that this organisation has worked successfully, and that no serious difficulty has been experienced in the progress of the work.

"All the necessary forms and instructions were issued so that they might be in the hands of the superintendents before the 16th March, on which day it was directed that the parcels of forms should be opened, and the distribution commenced.

"The distribution of the forms was completed on the 4th April, and their collection commenced on the 6th April.

"Each enumerator on completing the collection of the returns for his district proceeded to make a summary of the results. From these summaries the following report and accompanying tables have been compiled.

"This return relates to the more important territorial divisions only, and to the principal cities and towns.

"*General Summary.*

"4,706,162 persons (2,317,076 males and 2,389,086 females) were returned in the enumerators' summaries as constituting the population of Ireland on the night of Sunday, the 5th April—thus showing a decrease since 1881 of 468,674 persons, or 9·1 per cent.—the decrease in the number of males was equal to 8·5 per cent., and in the number of females to 9·6 per cent.

"There was during the decade a decrease of 83,271 persons, or 6·5 per cent. in the province of Leinster; 162,121, or 12·2 per cent. in the province of Munster; 125,198, or 7·2 per cent. in the province of Ulster; and 98,084, or 11·9 per cent. in the province of Connaught.

"The number of inhabitants in each of the provinces and in all Ireland in 1841, 1851, 1861, 1871, 1881, and 1891 respectively, and the decrease between 1881 and 1891, are shown in the following statement:—

Provincial Summary of the last Six Decennial Enumerations.

Provinces.	Number of Persons in						Increase or Decrease between 1881 and 1891.		
	1841.	1851.	1861.	1871.	1881.	1891.	Increase.	Decrease.	Rate per Cent.
Leinster	1,982,169	1,682,320	1,457,635	1,339,451	1,278,989	1,195,718	—	83,271	6·5
Munster	2,404,460	1,865,600	1,513,558	1,393,485	1,331,115	1,168,994	—	162,121	12·2
Ulster	2,389,263	2,013,879	1,914,236	1,833,228	1,743,075	1,617,877	—	125,198	7·2
Connaught.	1,420,705	1,012,479	913,135	846,213	821,657	723,573	—	98,084	11·9
Total of Ireland	8,196,597	6,574,278	5,798,967*	5,412,377	5,174,836	4,706,162	—	468,674	9·1

* Including 403 persons at sea on census night of 1861, who were returned upon English shipping forms only.

"The decrease of population in Ireland between 1871 and 1881 amounted to 4·4 per cent. as against 9·1 per cent. between 1881 and 1891; in the province of Leinster the decrease between 1871 and 1881 amounted to 4·5 per cent., between 1881 and 1891 to 6·5 per cent.; in the province of Munster the decrease between 1871 and 1881 was 4·5 per cent., between 1881 and 1891 it was 12·2 per cent.; in the province of Ulster the decrease between 1871 and 1881 was 4·9 per cent., between 1881 and 1891 it was 7·2 per cent.; and in Connaught it was 2·9 per cent. between 1871 and 1881, and 11·9 per cent. between 1881 and 1891.

"The following statement shows by counties and provinces and for the total of Ireland the percentage of increase or decrease between 1871 and 1881, and between 1881 and 1891:—

Provinces and Counties.	Percentage of Increase or Decrease in Population.			
	Between 1871 and 1881.		Between 1881 and 1891.	
	Increase.	Decrease.	Increase.	Decrease.
LEINSTER.				
Carlow county	—	9·8	—	12·2
Dublin ,,	3·4	—	2·4	—
Kildare ,,	—	9·3	—	7·7
Kilkenny ,,	—	9·0	—	12·4
King's ,,	—	4·0	—	10·2
Longford ,,	—	5·4	—	13·9
Louth county, and county of the town of Drogheda	—	7·5	—	8·8
Meath county	—	8·5	—	12·4
Queen's ,,	—	8·3	—	11·6
Westmeath ,,	—	8·5	—	9·4
Wexford ,,	—	6·6	—	10·8
Wicklow ,,	—	10·6	—	12·0
Total	—	4·5	—	6·5
MUNSTER.				
Clare county	—	4·3	—	12·4
Cork, E.R. ,,	—	5·0	—	11·9
,, W.R. ,,	—	2·5	—	11·8
Kerry ,,	2·3	—	—	11·0
Limerick ,,	—	5·9	—	12·2
Tipperary, N.R. ,,	—	7·8	—	12·0
,, S.R. ,,	—	8·0	—	14·5
Waterford ,,	—	8·6	—	13·0
Total	—	4·5	—	12·2
ULSTER.				
Antrim county	4·4	—	1·4	—
Armagh ,,	—	9·0	—	12·3
Cavan ,,	—	8·0	—	13·7
Donegal ,,	—	5·6	—	10·1
Down ,,	—	7·3	—	1·9
Fermanagh ,,	—	8·5	—	12·8
Londonderry ,,	—	5·1	—	8·1
Monaghan ,,	—	10·6	—	16·2
Tyrone ,,	—	8·4	—	13·4
Total	—	4·9	—	7·2
CONNAUGHT.				
Galway county	—	3·1	—	11·4
Leitrim ,,	—	5·4	—	13·3
Mayo ,,	0·1	—	—	11·3
Roscommon ,,	—	5·8	—	13·8
Sligo ,,	—	3·4	—	11·9
Total	—	2·9	—	11·9
Total of Ireland	—	4·4	—	9·1

"There was an increase between 1881 and 1891 in the population of two counties, viz., Dublin, which increased 2·4 per cent., and Antrim, 1·4 per cent.

"There was a decrease in the population of all the other counties. ranging from 16·2 per cent. in Monaghan; 14·5 in Tipperary, S.R.; and 13·9 per cent. in Longford; to 8·1 per cent. in Londonderry; 7·7 per cent. in Kildare; and 1·9 per cent. in Down.

"The following tabular statement presents to view the counties arranged in order of percentage as to increase or decrease between 1881 and 1891:—

Counties in which the Population has Increased, arranged in Order of Percentage of Increase.

Counties.	Population.		Amount of Increase.	
	1881.	1891.	Total.	Per-centage.
Dublin	418,910	429,111	10,201	2·4
Antrim	421,943	427,968	6,025	1·4

Counties in which the Population has Decreased, arranged in Order of Percentage of Decrease.

Counties.	Population.		Amount of Decrease.	
	1881.	1891.	Total.	Per-centage.
Monaghan	102,748	86,089	16,659	16·2
Tipperary, S.R.	113,281	96,880	16,401	14·5
Longford	61,009	52,553	8,456	13·9
Roscommon	132,490	114,194	18,296	13·8
Cavan	129,476	111,679	17,797	13·7
Tyrone	197,719	171,278	26,441	13·4
Leitrim	90,372	78,379	11,993	13·3
Waterford	112,768	98,130	14,638	13·0
Fermanagh	84,879	74,037	10,842	12·8
Kilkenny	99,531	87,154	12,377	12·4
Meath	87,469	76,616	10,853	12·4
Clare	141,457	123,859	17,598	12·4
Armagh	163,177	143,056	20,121	12·3
Limerick	180,632	158,563	22,069	12·2
Carlow	46,568	40,899	5,669	12·2
Wicklow	70,386	61,934	8,452	12·0
Tipperary, N.R.	86,331	76,002	10,329	12·0
Cork, E.R.	326,750	287,719	39,031	11·9
Sligo	111,578	98,338	13,240	11·9
Cork, W.R.	168,857	148,922	19,935	11·8
Queen's	73,124	64,639	8,485	11·6
Galway	242,005	214,256	27,749	11·4
Mayo	245,212	218,406	26,806	11·3
Kerry	201,039	178,519	22,120	11·0
Wexford	123,854	111,536	12,318	10·8
King's	72,852	65,408	7,444	10·2
Donegal	206,035	185,211	20,824	10·1
Westmeath	71,798	65,028	6,770	9·4
Louth & Drogheda	77,684	70,852	6,832	8·8
Londonderry	164,991	151,666	13,325	8·1
Kildare	75,804	69,998	5,816	7·7
Down	272,107	266,893	5,214	1·9

"*Religious Professions.*

"According to the summaries furnished by the enumerators, 3,549,745 persons returned themselves as Roman Catholics, this number being 411,146, or 10·4 per cent., under the number so returned in 1881; 600,830 were returned under the head of 'Protestant Episcopalians,'[4] being a decrease of 38,744, or 6·4 per cent., compared with the number tabulated under that head in 1881; 446,687 were returned as Presbyterians, being a decrease of 24,047 or 5·1 per cent. compared with 1881; the number of

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[4] The designation "Protestant Episcopalian" includes besides members of the "Church of Ireland" or "Irish Church," members of the Church of England, the Episcopal Church of Scotland, and any other Protestant Episcopal Church.

Methodists returned on the present occasion amounts to 55,235, being an increase of 6,396 or 13·1 per cent. on the number returned on the census forms in 1881.

"The following table shows by counties the religious professions (so far as ascertained) of the inhabitants in 1891:—

Counties.	Religious Professions.						
	Roman Catholics.	Protestant Episcopalians.	Presbyterians.	Methodists.	Jews.	All other Persuasions.	Information Refused.
Total of Ireland 1881	3,960,891	639,574	470,734	48,839	472	53,796	530
Total of Ireland '91	3,549,745	600,830	446,687	55,235	1,798	50,165	1,702
Increase or decrease between 1881 and 1891 — Number....	Decrease. 411,146	Decrease. 38,744	Decrease. 24,047	Increase. 6,396	Increase. 1,326	Decrease. 3,631	Increase. 1,172
Increase or decrease between 1881 and 1891 — Rate percent.	Decrease. 10·4	Decrease. 6·4	Decrease. 5·1	Increase. 13·1	Increase. 280·9	Decrease. 6·7	Increase. 221·1
Province of Leinster ...	1,018,487	149,368	12,858	7,705	1,171	5,769	360
Carlow county	36,106	4,477	111	156	5	39	3
Dublin ,, ...	330,677	79,959	8,249	4,173	1,074	4,703	276
Kildare ,, ...	58,874	9,060	1,315	538	15	184	12
Kilkenny ,, ...	82,681	4,093	167	132	12	66	3
King's ,, ...	58,126	6,438	285	443	6	96	14
Longford ,, ...	48,006	4,028	266	202	—	48	3
Louth county, and county of the town of Drogheda	64,741	4,784	950	283	25	62	7
Meath county........	71,389	4,772	350	68	3	31	3
Queen's ,, ...	56,743	6,912	280	516	9	169	10
Westmeath ,, ...	59,904	4,558	271	214	1	79	1
Wexford ,, ...	102,002	8,771	237	346	2	168	10
Wicklow ,, ...	49,238	11,516	377	632	19	134	18
Province of Munster	1,095,210	62,875	3,448	5,072	342	1,883	164
Clare county	121,537	2,123	105	73	1	15	5
Cork, E.R. ,,	259,819	23,769	1,589	1,546	182	766	48
,, W.R. ,,	135,299	11,407	381	1,638	—	166	31
Kerry ,,	173,025	5,101	211	381	19	153	29
Limerick ,,	150,551	6,604	425	606	112	243	22
Tipperary, N.R. ,,	70,096	5,341	148	371	—	45	1
,, S.R. ,,	91,929	4,354	293	165	11	123	5
Waterford ,,	92,954	4,176	296	292	17	372	23

Counties.	Religious Professions.						
	Roman Catholics.	Protestant Episcopalians.	Presbyterians.	Methodists.	Jews.	All other Persuasions.	Information Refused.
Province of Ulster	744,353	361,897	427,810	40,525	276	41,885	1,131
Antrim county	106,464	106,110	181,011	14,719	182	19,099	383
Armagh ,, ...	65,906	46,133	23,042	5,295	47	2,511	122
Cavan ,, ...	90,329	16,325	3,836	1,041	1	129	18
Donegal ,, ...	142,639	21,761	18,157	2,012	—	634	8
Down ,, ...	73,464	65,305	106,484	7,751	22	13,546	321
Fermanagh ,, ...	41,149	26,759	1,299	4,731	—	96	3
Londonderry ,, ...	67,749	29,362	49,367	975	5	4,105	103
Monaghan ,, ...	63,084	11,233	10,904	484	7	336	41
Tyrone ,, ...	93,569	38,909	33,710	3,517	12	1,429	132
Province of Connaught.	691,695	26,690	2,571	1,933	9	628	47
Galway county	208,011	5,274	612	249	—	105	5
Leitrim ,, ...	70,872	6,446	226	795	2	15	23
Mayo ,, ...	213,167	4,194	704	209	3	125	4
Roscommon ,, ...	110,147	3,501	332	127	1	78	8
Sligo ,, ...	89,498	7,275	697	553	3	305	7

"Of the total population in 1891, 75·4 per cent. were returned as Roman Catholics, 12·8 per cent. as Protestant Episcopalians, 9·5 per cent. as Presbyterians, and 1·2 per cent. as Methodists.

"*Families.*

"The number of families returned in 1891 is 940,092, being a decrease since 1881 of 54,982, or 5·5 per cent. Tho number of families in 1891 represents an average of 5·0 persons to a family; in 1881 the average was 5·2.

"The following summary shows, by provinces, the total number of dwelling houses, distinguishing 'inhabited,' 'uninhabited,' and 'building:'—

Summary, showing by Provinces, the Total Number of Houses in 1841, 1851, 1861, 1871, 1881, *and* 1891, *and the Difference in Number between* 1881 *and* 1891.

Provinces.	Description of Houses.	Number of Houses.						Difference between 1881 and 1891.		
		1841.	1851.	1861.	1871.	1881.	1891.	Increase. Number.	Decrease. Number.	Rate per Cent.
Leinster	Inhabited	306,459	258,012	236,614	227,462	216,225	209,485	—	6,740	3·1
	Uninhabited* ...	12,320	17,590	10,520	7,600	14,507	17,323	2,816	—	19·4
	Building	1,272	593	863	579	671	582	—	89	13·3
Munster	Inhabited	364,637	267,073	243,267	234,757	219,631	202,627	—	17,004	7·7
	Uninhabited*	12,005	19,417	9,961	7,183	11,853	15,771	3,918	—	24·9
	Building	1,023	473	725	474	219	559	340	—	155·2
Ulster	Inhabited	414,551	351,885	351,655	345,464	332,832	326,391	—	6,441	1·9
	Uninhabited*	21,590	20,679	16,415	13,599	27,612	27,319	—	293	1·1
	Building	626	520	802	813	749	1,252	503	—	67·1
Connaught	Inhabited	243,192	169,253	163,620	153,697	145,420	134,166	—	11,254	7·7
	Uninhabited*	6,293	7,577	4,061	3,148	4,285	5,304	1,019	—	23·8
	Building	392	282	530	304	71	175	104	—	146·5
IRELAND	Inhabited	1,328,839	1,046,223	995,156	961,380	914,108	872,669	—	41,439	4·5
	Uninhabited* ...	52,208	65,263	40,957	31,530	58,257	65,717	7,460	—	12·8
	Building	3,313	1,868	2,920	2,170	1,710	2,568	858	—	50·0

* Including newly constructed houses not yet occupied.

"*Houses.*

"From the foregoing summary it will be seen that in Ireland a decrease of 41,439, or 4·5 per cent., took place in the inhabited houses between 1881 and 1891; the decrease in the province of Leinster being 3·1 per cent., in Munster 7·7 per cent., in Ulster 1·9 per cent., and in Connaught 7·7 per cent.

"The number of uninhabited houses[5] increased between 1881 and 1891 by 7,460, or 12·8 per cent., the increase in the province of Leinster being equal to 19·4 per cent., in Munster to 24·9 per cent., and in Connaught to 23·8 per cent.; there was a decrease of 1·1 per cent. in the number of uninhabited houses in Ulster. There were 2,568 houses returned as "building," being an increase of 858 compared with the number returned in 1881.

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[5] Including newly constructed houses not yet occupied.

Table showing, by Parliamentary Divisions, the Population in 1881 *and* 1891, *and the Increase or Decrease between these periods.*

Provinces, Counties, &c.	Parliamentary Divisions.	Population.		Increase or Decrease between 1881 and 1891.	
		1881.	1891.	Decrease.	Rate per Cent.
PROVINCE OF LEINSTER.					
Carlow County	Carlow	46,568	40,899	5,669	12·2
Dublin County	North Dublin	72,992	75,097	(*a*)2,105	(*a*) 2·9
	South Dublin	72,636	75,118	(*a*)2,482	(*a*) 3·4
Kildare County	North Kildare	36,650	32,191	4,459	20·4
	South Kildare	39,154	37,797	1,357	3·5
Kilkenny County	North Kilkenny	41,081	35,804	5,277	12·8
	South Kilkenny	43,172	38,027	5,145	11·9
King's County	Birr	37,504	33,846	3,658	9·8
	Tullamore	35,348	31,562	3,786	10·7
Longford County	North Longford	30,540	26,902	3,638	11·9
	South Longford	30,469	25,651	4,818	15·8
Louth Co. and Co. of the Town of Drogheda	North Louth	40,409	37,536	2,873	7·1
	South Louth	37,275	33,316	3,959	10·6
Meath County	North Meath	44,066	39,394	4,672	10·6
	South Meath	43,403	37,222	6,181	14·2
Queen's County	Ossory	36,858	32,503	4,355	11·8
	Leix	36,266	32,136	4,130	11·4
Westmeath County	North Westmeath	37,219	33,715	3,504	9·4
	South Westmeath	34,579	31,313	3,266	9·4
Wexford County	North Wexford	61,610	55,465	6,145	10·0
	South Wexford	62,244	56,071	6,173	9·9
Wicklow County	West Wicklow	35,787	30,710	5,077	14·2
	East Wicklow	34,599	31,224	3,375	9·8
	Total of Leinster	990,429	903,499	86,930	8·8

(*a*) Increase.

Table showing the Population in 1881 *and* 1891, *and the Increase or Decrease—Contd.*

Provinces, Counties, &c.	Parliamentary Divisions.	Population.		Increase or Decrease between 1881 and 1891.	
		1881.	1891.	Decrease.	Rate per Cent.
PROVINCE OF MUNSTER.					
Clare County	East Clare	70,569	61,341	9,228	13·0
	West Clare	70,888	62,518	8,370	11·8
Cork County	North Cork	56,319	48,917	7,402	13·1
	North East Cork	56,590	49,837	6,753	11·1
	Mid Cork	57,416	49,594	7,822	13·6
	East Cork	57,578	49,284	8,294	14·4
	West Cork	52,867	50,186	2,681	5·1
	South Cork	55,593	46,269	9,324	16·8
	South East Cork	54,748	45,663	9,085	16·6
Kerry County	North Kerry	50,813	43,559	7,254	14·3
	West Kerry	49,533	45,814	3,719	7·5
	South Kerry	50,837	45,498	5,339	10·5
	East Kerry	49,856	44,048	5,808	11·6
Limerick County	West Limerick	66,387	56,763	9,624	14·5
	East Limerick	65,575	55,891	9,684	14·8
Tipperary County	North Tipperary	49,156	43,009	6,147	12·5
	Mid Tipperary	50,356	45,208	5,148	10·2
	South Tipperary	47,974	39,914	8,060	16·8
	East Tipperary	52,126	44,751	7,375	14·1
Waterford County	West Waterford	43,990	37,435	6,555	14·9
	East Waterford	39,597	33,072	6,525	16·5
	Total of Munster	1,148,768	998,571	150,197	13·1
PROVINCE OF ULSTER.					
Antrim County	North Antrim	57,526	51,056	6,470	11·2
	Mid Antrim	56,729	50,197	6,532	11·5
	East Antrim	56,402	51,772	4,630	8·2
	South Antrim	58,283	51,875	6,408	11·0
Armagh County	North Armagh	52,623	48,455	4,168	7·9
	Mid Armagh	53,411	45,873	7,538	14·1
	South Armagh	51,198	43,143	8,055	15·7
Cavan County	West Cavan	65,449	57,750	7,699	11·8
	East Cavan	64,027	53,929	10,098	15·8
Donegal County	North Donegal	50,840	46,379	4,461	8·8
	West Donegal	51,321	46,931	4,390	8·6
	East Donegal	51,509	45,459	6,050	11·7
	South Donegal	52,365	46,442	5,923	11·3
Down County	North Down	56,517	54,114	2,403	4·3
	East Down	59,283	52,270	7,013	11·8
	West Down	58,775	50,731	8,044	13·7
	South Down	59,290	51,771	7,519	12·7
Fermanagh County	North Fermanagh	42,792	37,756	5,036	11·8
	South Fermanagh	42,087	36,281	5,806	13·8
Londonderry County	North Derry	66,717	59,788	6,929	10·4
	South Derry	69,112	58,985	10,127	14·7
Monaghan County	North Monaghan	51,183	43,479	7,704	15·1
	South Monaghan	51,565	42,610	8,955	17·4
Tyrone County	North Tyrone	48,026	42,412	5,614	11·7
	Mid Tyrone	49,986	43,221	6,765	13·5
	East Tyrone	51,639	44,730	6,909	13·4
	South Tyrone	48,068	40,915	7,153	14·9
	Total of Ulster	1,476,723	1,298,324	178,399	12·1

Table showing the Population in 1881 *and* 1891, *and the Increase or Decrease—Contd.*

Provinces, Counties, &c.	Parliamentary Divisions.	Population.		Increase or Decrease between 1881 and 1891.	
		1881.	1891.	Decrease.	Rate per Cent.
PROVINCE OF CONNAUGHT.					
Galway County	Connemara	56,239	50,362	5,877	10·5
	North Galway	58,664	51,902	6,762	11·5
	East Galway	54,847	48,939	5,908	10·8
	South Galway	53,084	46,111	6,973	13·1
Leitrim County	North Leitrim	44,723	40,585	4,138	9·3
	South Leitrim	45,649	37,794	7,855	17·2
Mayo County	North Mayo	59,974	52,830	7,144	11·9
	West Mayo	63,070	56,539	6,531	10·4
	East Mayo	58,676	52,639	6,037	10·3
	South Mayo	63,492	56,398	7,094	11·2
Roscommon County	North Roscommon	66,724	56,394	10,330	15·5
	South Roscommon	65,766	57,800	7,966	12·1
Sligo County	North Sligo	54,657	48,458	6,199	11.3
	South Sligo	56,921	49,880	7,041	12·4
	Total of Connaught	802,486	706,631	95,855	11·9

Town Populations.

"The following statement shows the towns having in 1881 a population of 10,000 or upwards; the parliamentary boroughs; and the suburban townships of Dublin; arranged according to their percentage of increase or decrease of population, between 1881 and 1891.

"From this table it will be observed that the largest percentage (64·8) of increase of population between 1881 and 1891, was in the township of Drumcondra, Clonliffe, and Glasnevin; and the next 23·2 in Belfast parliamentary borough.

"The greatest percentage (17·5) of decrease would appear to have taken place at Armagh; Kilkenny presents the next highest percentage (12·8) of decrease.

Cities and Towns arranged in the Order of Percentage of Increase or Decrease of Population between 1881 *and* 1891.

Those marked (*) are Parliamentary Boroughs.

Cities and Towns, arranged in Order of Percentage of *Increase* of Population.

Cities and Towns.	Population.		Increase.	
	1881.	1891.	Total.	Percentage.
Drumcondra........	4,878	8,041	3,163	64·8
Belfast*	221,600	273,055	51,455	23·2
Belfast	208,122	255,896	47,774	23·0
Clontarf	4,210	5,105	895	21·2
New Kilmainham	5,391	6,516	1,125	20·9
Rathmines and Rathgar........	24,370	27,729	3,359	13·8
Londonderry*	29,162	32,893	3,731	12·8
Dundalk	11,913	13,207	1,294	10·9
Lurgan	10,755	11,447	692	6·4
Pembroke	23,222	24,270	1,048	4·5
Dublin*................	273,282	278,896	5,614	2·1
Dublin	249,602	254,709	5,107	2·0

Cities and Towns, arranged in Order of Percentage of *Decrease* of Population.

Cities and Towns.	Population.		Decrease.	
	1881.	1891.	Total.	Percentage.
Armagh	10,070	8,303	1,767	17·5
Kilkenny*	15,278	13,323	1,955	12·8
Newry*	15,590	13,605	1,985	12·7
Galway*	19,171	16,942	2,229	11·6
Galway	15,471	13,746	1,725	11·1
Newry	14,808	13,211	1,597	10·8
Kilkenny	12,299	11,024	1,275	10·4
Cork*	104,496	96,891	7,605	7·3
Kingstown	18,586	17,340	1,246	6·7
Sligo............	10,808	10,110	698	6·5
Cork............	80,124	75,070	5,054	6·3
Lisburn	10,135	9,517	618	6·1
Blackrock	8,902	8,380	522	5·9
Limerick*	48,670	45,909	2,761	5·7
Waterford*	29,181	27,623	1,558	5·3
Wexford	12,163	11,541	622	5·1
Drogheda ..	12,297	11,812	485	3·9
Limerick	38,562	37,072	1,490	3·9
Waterford	22,457	21,693	764	3·4

Dublin Metropolitan Police Districts.

"The population within the Dublin metropolitan police district increased between 1881 and 1891 by 12,203, or 3·5 per cent.

Births, Deaths, and Emigration.

"The number of births registered in Ireland during the decade commencing on 1st April, 1881, and ending 31st March, 1891, was 1.147,432; and of deaths, 879,779; the natural increase of the population would thus appear to have been 267,653; 768,105 persons, however, having emigrated during the same period, the net result shown by these statistics is a decrease of 500,452, which is 31,778 more than the difference between the population enumerated in 1891 and the number returned in 1881; being a difference of 0·7 per cent. of the population as returned in the enumerators' summaries in 1891."

MISCELLANEA.

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I.—*Notes on the Preliminary Returns of the Censuses of some Foreign Countries and British Colonies*, 1890-91.

1. *France.*

The Census in this country was taken on 12th April last, just one week later than in England. Frenchmen have been a good deal exercised of late concerning the very slow increase in their population, and many fears have been expressed that this will shortly become a decrease, a state of affairs, which from a military point of view, they consider an unmitigated evil. The figures of the present census will therefore not go far towards reassuring them, for whereas in the preceding quinquenniad (1881-86) there was an increase of 565,380 persons (1·52 per cent.), this dwindled down in 1886-91 to 208,590 (0·52 per cent.)—about one-tenth of the English rate. Even this increase is entirely due to the towns. One department alone—the *Seine*—shows an increase of 249,353 inhabitants. This department practically consists of Paris and its suburbs; so that France without Paris shows a decrease. Of the 87 departments, 59 have a smaller population than in 1886, while only 28 have a larger. The largest increase is in the department of the *Alpes Maritimes* (18·80 per cent.), the coast of which is better known to Englishmen as the Riviera. The greatest numerical decrease is in the *Lot* (15,999), but the *Hautes-Alpes* shows the greatest relative decrease (6·43 per cent.). The departments which have decreased are not confined to any one part, but are spread generally over the whole country. With few exceptions (of which the most noticeable is Corsica) the departments which have increased are those containing the largest towns, and even in the majority of these the numerical advance in the urban population is greater than that of the department as a whole. From Table II, which gives the population of the towns containing more than 30,000 inhabitants, it may be seen that the total increase in these towns is 481,128, leaving a deficit in the rest of the country of 272,538 persons. Four of these towns have declined: two, Perpignan and Douai, are only just within the 30,000 limit; Calais seems to have apparently suffered from the rivalry of Boulogne, but will probably take a fresh start now that its new harbour is completed; while the diminution in Nantes, which loses nearly 5,000 people, is evidently due to the superior capabilities of St. Nazaire, lower down the river, as a seaport. (The mouth of the Loire is much encumbered by shoals.) This latter town indeed shows an increase of no less than 66 per cent. The most flourishing among the other towns are Nice, Montpellier, and Grenoble.

The two following tables show (1) the population by departments in 1886 and 1891, and the changes, (2), the population of the principal towns at the same periods.

TABLE 1.—*Population by Departments.*

Departments.	Population.		Increase.	Decrease.	Increase or Decrease per Cent.
	In 1891.	In 1886.			
Ain	355,937	364,158	—	8,221	2·25
Aisne	545,435	555,030	—	9,595	1·73
Allier	424,081	424,581	—	500	0·12
Alpes (Basses-)	122,008	127,880	—	5,872	4·59
„ (Hautes-)	114,620	122,501	—	7,881	6·43
„ Maritimes	275,634	232,007	43,627	—	18·80
Ardèche	368,614	371,929	—	3,315	0·89
Ardennes	324,363	332,359	—	7,996	2·41
Ariège	219,601	230,590	—	10,989	4·77
Aube	255,672	256,901	—	1,229	0·51
Aude	316,214	328,642	—	12,428	3·78
Aveyron	397,746	411,413	—	13,667	3·32
Bouches-du-Rhône	633,278	603,206	30,072	—	4·99
Calvados	428,931	436,117	—	7,186	1·65
Cantal	229,880	235,093	—	5,213	2·22
Charente	357,099	360,648	—	3,549	0·98
„ Inférieure	453,665	461,160	—	7,495	1·62
Cher	358,961	355,953	3,008	—	0·85
Corrèze	319,383	320,135	—	752	0·23
Corse	275,674	267,149	8,525	—	3·19
Côte-d'Or	376,501	386,408	—	9,907	2·56
Côtes-du-Nord	606,338	614,837	—	8,499	1·38
Creuse	260,254	265,487	—	5,233	1·97
Dordogne	475,116	487,633	—	12,517	2·57
Doubs	302,005	309,419	—	7,414	2·40
Drôme	304,599	312,110	—	7,511	2·41
Eure	347,355	357,068	—	9,713	2·72
„ et-Loir	282,856	285,075	—	2,219	0·78
Finistère	719,751	699,834	19,917	—	2·85
Gard	416,884	414,905	1,979	—	0·48
Garonne (Haute-)	463,964	471,279	—	7,315	1·55
Gers	259,770	273,112	—	13,342	4·89
Gironde	789,979	768,471	21,508	—	2·80
Hérault	460,847	435,138	25,709	—	5·91
Ille-et-Vilaine	624,592	616,044	8,548	—	1·39
Indre	289,954	293,280	—	3,326	1·13
„ et-Loire	338,038	340,989	—	2,951	0·87

TABLE 1.—*Population by Departments—Contd.*

Departments.	Population.		Increase.	Decrease.	Increase or Decrease per Cent.
	In 1891.	In 1886.			
Isère	569,577	578,840	—	9,263	1·60
Jura	271,888	279,872	—	7,984	2·85
Landes	296,954	301,096	—	4,142	1·38
Loir-et-Cher	279,716	278,429	1,287	—	0·46
Loire	614,866	600,411	14,455	—	2·41
,, (Haute-)	312,421	326,546	—	14,125	4·33
,, Inférieure	640,533	640,437	96	—	0·01
Loiret	376,906	375,927	979	—	0·26
Lot	252,765	268,764	—	15,999	5·95
,, et-Garonne	293,016	305,534	—	12,518	2·21
Lozère	131.927	138,666	—	6,739	4·84
Maine-et-Loire	519,338	525,080	—	5,742	1·09
Manche	511,248	518,619	—	7,401	1·43
Marne	437,218	430,349	6,869	—	1·60
,, (Haute-)	243,593	245,174	—	1,581	0·65
Mayenne	332,583	339,110	—	6,527	1·93
Meurthe-et-Moselle	445,041	432,095	12,946	—	3·00
Meuse	291,556	289,678	1,878	—	0·65
Morbihan	540,699	531,511	9,188	—	1·73
Nièvre	340,480	345,908	—	5,428	1·57
Nord	1,734,403	1,657,127	77,276	—	4·66
Oise	401,607	405,340	—	3,733	0·92
Orne	353,874	366.368	—	12,494	3·41
Pas-de-Calais	869,331	845,350	23,981	—	2·84
Puy-de-Dôme	550,973	557,028	—	6,055	1·09
Pyrénées (Basses-)	422,791	424,056	—	1,265	0·30
,, (Hautes-)	223,808	232,320	—	8,512	3·66
,, Orientales	206,866	217,979	—	11,113	5·10
Rhin (Haut-) (partie française)	83,344	79,239	4,105	—	5·18
Rhône	796,818	769,238	27,610	—	3·58
Saône (Haute-)	280,344	290,626	—	10,282	3·54
,, et-Loire	615,854	622,904	—	7,050	1·13
Sarthe	431,124	438,025	—	6,901	1·58
Savoie	261,550	267,072	—	5,522	2·07
,, (Haute-)	265,065	273,251	—	8,186	3·00
Seine	3,113,200	2,863,847	249,353	—	8·71
,, Inférieure	830,577	825,990	4,587	—	0·56
,, et-Marne	358,355	363,614	—	5,259	1·45
,, et-Oise	628,783	636,297	—	7,514	1·18
Sèvres (Deux-)	352,790	351,142	1,648	—	0·47
Somme	545,225	545,785	—	560	0·10
Tarn	341,580	355,142	—	13,562	3·85
,, et-Garonne	205,760	212,447	—	6,687	3·15
Var	288,948	281,439	7,509	—	2·67
Vaucluse	233,910	240,488	—	6,578	2·73
Vendée	441,511	433,843	7,668	—	1·77
Vienne	342,893	331,212	11,681	—	3·53
,, (Haute-)	363,870	355,604	8,266	—	2·32
Vosges	409,170	409,759	—	589	0·14
Yonne	342,878	353,417	—	10,539	2·98
Total	38,095,156	37,886,566	634,275	425,685	—
	—	—	208,590	—	0·52

TABLE 2.—*Population of Towns with over 30,000 Inhabitants.*

Departments.	Towns.	Population. In 1891.	Population. In 1886.	Increase	Decrease.	Increase or Decrease per Cent.
Aisne	Saint-Quentin	48,371	47,002	1,369	—	2·91
Alpes-Maritimes	Nice	96,284	75,979	20.305	—	26·72
Aube	Troyes	50,086	46,272	3,814	—	8·24
Bouches-du-Rhône	Marseille	406,919	375,378	31,541	—	8·40
Calvados	Caen	46.417	43,522	2,895	—	6·66
Charente	Angoulême	36,099	34,126	1,973	—	5·79
,, Inférieure	Rochefort	33,246	31,169	2,077	—	6·66
Cher	Bourges	45,432	42,611	2,821	—	6·62
Côte-d'Or	Dijon	64,656	61,941	2,715	—	4·38
Dordogne	Périgueux	31,035	29,095	1,940	—	9·33
Doubs	Besançon	56,509	56,303	206	—	0·37
Finistère	Brest	75,854	70,778	5,076	—	7·17
Gard	Nîmes	71,717	69,341	2,376	—	3·43
Garonne (Haute-)	Toulouse	148,220	144,714	3,506	—	2·42
Gironde	Bordeaux	252,054	238,899	13.155	—	5·51
Hérault	Béziers	44,749	42,094	2,655	—	6·31
	Cette	36,187	35,848	339	—	0·95
	Montpellier	69,834	57,231	12,603	—	22·03
Ille-et-Vilaine	Rennes	68,667	66,055	2,612	—	3·94
Indre-et-Loire	Tours	61,532	59,211	2,321	—	3·92
Isère	Grenoble	60,698	50,677	10,021	—	19·77
Loire	Saint-Étienne	133,443	117,875	15,568	—	13·20
,, Inférieure	Nantes	121,054	125,932	—	4,878	3·87
	Saint-Nazaire	40,117	24.204	15,913	—	65·76
Loiret	Orléans	64.638	60,448	4,190	—	6·94
Maine-et-Loire	Angers	73,270	70,962	2,308	—	3·25
Manche	Cherbourg	38,829	37.220	1,609	—	4·32
Marne	Reims	105,993	90,339	15,654	—	17·33
Mayenne	Laval	30,693	30,214	479	—	1·59
Meurthe-et-Moselle	Nancy	86,959	79,091	7,868	—	9·95
Morbihan	Lorient	42,480	39,607	2,873	—	7·26
Nord	Douai	30,270	30,497	—	227	0·75
	Dunkerque	40,513	37,927	2,586	—	6·82
	Lille	200,935	185,951	14,984	—	8·06
	Roubaix	115,032	100,179	14,853	—	14·82
	Tourcoing	64,692	56,419	8,273	—	14·67
Pas-de-Calais	Boulogne	45,185	44,745	440	—	0·98
	Calais	56,949	58,710	—	1.761	2·10
Puy-de-Dôme	Clermont-Ferrand	49,776	46,426	3,350	—	7·22
Pyrénées (Basses-)	Pau	32,544	30,162	2,382	—	7·89
,, Orientales	Perpignan	33,133	33,625	—	492	1·47
Rhône	Lyon	430,322	400,410	29.912	—	7·47
Sarthe	Le Mans	58,346	57,378	968	—	1·69
Seine	Paris	2,423,946	2,256,134	167,812	—	7·44
	Boulogne-s.-Seine	32.210	29,251	2.959	—	10·12
	Clichy	30,366	26,002	4.364	—	16·78
	Levallois-Perret	39,543	35,649	3.894	—	10·95
	Saint-Denis	50,552	46,829	3,723	—	7·95
,, Inférieure	Le Havre	116,182	110,968	5,214	—	4·70
	Rouen	109,541	105,501	4.040	—	3·83
,, et-Oise	Versailles	53,327	48,679	4.648	—	9·55
Somme	Amiens	83,977	79,307	4.670	—	5·89
Tarn-et-Garonne	Montauban	30,207	29,445	762	—	2·59
Var	Toulon	77,757	69,412	8,345	—	12·02
Vaucluse	Avignon	42,350	40,548	1,802	—	4·44
Vienne	Poitiers	37,303	36,388	915	—	2·51
,, (Haute-)	Limoges	71,884	66,876	5,008	—	7·49

2. *Germany.*

The German census, of which the preliminary return is published in the *Monatshefte zur Statistik des Deutschen Reichs* for February, was taken on the 1st December, 1890. For the whole country the increase during the decade has been 9·26 per cent., but several provinces show a stationary or declining population, notably East Prussia, Pomerania, Hohenzollern, Franconia, parts of Wurtemberg, Oldenburg, Baden, and Mecklenburg, while the greatest increase is in Brandenberg, the two Saxonies, Westphalia, Rhineland, Upper Bavaria, Reuss Lübeck, and especially Hamburg. The general tendency therefore is for the people to leave the comparatively poor districts of the east and north-east, and to accumulate in the manufacturing districts of the Rhine and Saxony.

Berlin has 1,579,244 inhabitants, an increase during the quinquennium (the last census was in 1885) of 20·07 per cent., and during the decennium 1880-90, of 40·71 per cent. The greatest strides since 1885 have been made by Charlottenburg, thanks to its proximity to Berlin: it has increased 80·27 per cent. since 1885, and 152·18 per cent. since 1880. Munich, owing to the extension of its boundaries, is now the second town in the empire, having passed Hamburg and Breslau. These two last towns also change places. At first sight, the increase of Hamburg (18,049, or 5·9 per cent.), does not seem so large as might have been expected, considering the important progress it has made of late years as a seaport, and its rivalry with Liverpool. As a matter of fact the two places are somewhat similar, for in both cases the *town* itself is on a very small area, and the new comers have been obliged to settle in the suburbs. The area of Hamburg is 2,731 acres (a little more than St. Pancras in London, or Brighton), and its density per acre is 119, while the area of Liverpool is 5,210 acres, with a density of 99·4 (106 in 1881). To get at the true increase of Hamburg we must consider the figures for the whole State (which includes several outlying districts that would tend to diminish the increase); this has increased by 105,579, *i.e.*, by 20·36 per cent., and practically the whole of this may be assumed to be in the immediate neighbourhood of Hamburg. If we take into consideration the fact that Altona, which, although not in the State, practically adjoins Hamburg, has increased also by some 13 per cent., and also that these percentages refer to a period of five years only, it will be seen that this corner of the empire has really increased very considerably.

One town—Stralsund—has declined since 1880, while in two or three other smaller towns the number of the inhabitants is less than in 1885. In Saxony, the capital Dresden has been surpassed by Leipzig, whose boundaries have been very considerably extended. In Alsace and Lorraine there has been a very marked increase in the number of inhabitants since 1885, whereas in the preceding fifteen years the population sometimes showed a slight augmentation, and sometimes a slight falling off.

The following table gives the population in the principal States:—

	1880.	1885.	1890.	Increase per Cent. per Annum.	
				1880-85.	1885-90.
Germany	45,234,051	46,855,704	49,422,928	0·70	1·07
Prussia (without Heligoland)	27,279.111	28,318,470	29,957,302	0·75	1·13
Heligoland	....	....	2,086	....	....
Bavaria	5,284,778	5,420,199	5,589,382	0·51	0·61
Saxony	2,972,805	3,182,003	3,500,513	1·36	1·91
Wurtemberg	1,971,118	1,995,185	2,035,443	0·24	0·40
Baden	1,570.254	1,601,255	1,656.817	0·39	0·68
Hesse	936,340	956,611	994,614	0·43	0·78
Alsace-Lorraine	1,566,670	1,564,355	1,603,987	--0·03	0·50

The following are the towns with more than 100,000 inhabitants:—

Berlin	1,579,244	Nürnberg	142,403
Munich	348,317	Stuttgart	139,659
Breslau	335,174	Chemnitz	138,955
Hamburg	323,739	Elberfeld	125,830
Leipzig	293,525	Bremen	125,511
Cologne	281,273	Strasburg	123,545
Dresden	276,085	Danzig	120,459
Magdeburg	202,325	Barmen	116,248
Frankfurt a. M.	179,850	Stettin	116,239
Hanover	165,499	Crefeld	105,371
Königsberg	161.528	Aix-la-Chapelle	103,491
Düsseldorf	144.682	Halle a. S.	101,401
Altona	143,249	Brunswick	100,288

3. *Austria.*

The Austrian returns call for little remark, very few changes in the rate of increase having taken place during the decade. The increase was 1.691,017 persons, or 7·6 per cent., against 8·6 per cent. in the eleven years 1869-80, and the total population (31st December, 1890) is 23.835,261. As might be expected, the province of Lower Austria, in which is situated the capital, shows the largest growth, viz., 13·8 per cent.—below the rate for the preceding decennium (17·1). Lower Austria, Bohemia, and Silesia are the most thickly populated districts, each having more than one hundred persons to the square kilometer. The most decided change in the rate of increase is in Dalmatia, where it is now 10·1 instead of 4·2. The only portions showing a decrease are a few districts in the Tyrol, the population for the whole of this province being nearly stationary.

The following tables show the population in the various provinces and the largest towns:—

Provinces.	Population.		Increase.	
	1880.	1890.	Numerical.	Per Cent.
Austria	22,141,244	23,835,261	1,691,017	7·6
Lower Austria	2,330,621	2,651,530	320,909	13·8
Upper "	759,620	783,576	23,956	3·2
Salzburg	163,570	173,872	10,302	6·3
Steiermark	1,213,597	1,281,023	67,426	5·6
Carinthia	348.730	360.443	11,713	3·4
Krain	481,243	498.390	17,147	3·6
Trieste	144,844	157,648	12,804	8·8
Gorz and Gradisca	211.084	219,996	8,912	4·2
Istria	292,006	318,209	26,203	9·0
Tyrol	805,176	812,704	7,528	0·9
Vorarlberg	107,373	116,216	8,843	8·2
Bohemia	5,560,819	5,837.603	276,784	5·0
Moravia	2,153,407	2,272,856	119,449	5·5
Silesia	565,475	602,117	36,642	6·5
Galicia	5,958,907	6,578,364	619,457	10·4
Bukowina	571,671	646,607	74.936	13·1
Dalmatia	476,101	524,107	48,006	10·1

Towns.	Population.		Increase.	
	1880.	1890.	Numerical.	Per Cent.
Vienna	1,112,025	1,355,255	243,230	21·9
Prague	162,323	183,085	20,762	12·8
Trieste	144,844	157,648	12,804	8·8
Lemberg	109,746	127,638	17,892	16·3
Graz	97,791	112,771	14,980	15·3
Brünn	82,660	94,753	12,093	14·6
Cracow	66,095	75,514	9,419	14·2
Czernowitz	45,600	54,040	8,440	18·5

4. *Hungary.*

Hungary shows an unusual development during the last ten years. In 1869 the population (including Fiume, Croatia, and Slavonia) was 15,417,000, and in 1880 only 15,610,000; it increased therefore by 1¼ per cent. Now it is 17.335.929, or an increase of no less than 10·82 during the decade. This it will be noticed is a considerably higher rate of increase than has prevailed in Austria. Fiume itself has increased 38·22 per cent. In Hungary proper the most prosperous region appears to be between the Danube and the Theiss, where the inhabitants are more numerous than in 1880 by 414,251 (17·67 per cent.). Buda-Pesth has over 494,000 inhabitants, having increased by 37·19 per cent., while the second town in the kingdom is Szegedin, with more than 80,000; Szabadka has over 70,000, and Pressburg, Debreezin, and Vasarhély each over 50,000; Fiume has 29.000. One town—Werschetz—has lost 500 inhabitants; this is attributed to the ravages of the phylloxera, which have been so excessive that, whereas in 1880 the area of the vineyards in the district was 13,800 acres, it is now only 3,600 acres.

5. *Denmark.*

The preliminary returns of the census of this country (taken on the 1st February, 1890) call for little comment. We therefore leave the following figures to speak for themselves. Perhaps the most noticeable feature is the large relative increase in the towns:—

	1860.	1880.	1890.	Annual Increase.	
				1860-80.	1880-90.
Copenhagen	155,143	234,850	312,387	2·09	2·89
Islands (without Copenhagen)	753,013	865,678	917,457	0·70	0·58
Jutland	700,206	868,511	942,361	1·08	0·82
Faroe Islands	8,922	11,220	12,954	1·15	1·45
Total	1,617,284	1,980,259	2,185,159	1·02	0·99

Chief Towns.	1890.	1880.	Increase, 1880-90.
Copenhagen	312,387	234,850	33·02
Frederiksberg (a suburb of Copenhagen)	46,959	26,510	77·14
Aarhus	33,308	24,831	34·14
Odense	30,277	20,804	45·53
Aalborg	19,503	14,152	37·81
Horsens	17,290	12,654	36·66
Randers	16,617	13,457	23·48
Elseneur	11,082	8,978	23·44
Fredericia	10,044	8,275	21·38

6. *Norway.*

The last general census in Norway was in 1875 (31st December), but a partial census, of the principal towns only, was taken in 1886. According to the latest returns (1st January, 1891) the increase of population in the towns has very considerably exceeded the increase in the rural districts, much more so, in fact, than in other countries. The rural population in 1876 was more than four times the urban, and yet the latter shows a numerically greater increase.

	1876.	1891.	Increase.	Increase per Cent.
Rural population	1,452,694	1,525,537	72,843	5·0
Urban "	360,730	473,639	112,909	31·3
Total	1,813,424	1,999,176	185,752	10·2

The provinces of Kristians, Hedermarken, and north Trondjem show a decrease in the number of their inhabitants, in the first case amounting to 6·3 per cent. After Christiania and Bergen, in which the town forms the whole district, the greatest increase is in Nordland, 27·5 per cent.

The following table gives the population of the principal towns at the three periods, 1876, 1886, and 1891:—

	1876.	1886.	1891.	Increase per Cent.	
				1876-86.	1886-91.
Christiania	95,836	130,027	150,444	36·9	15·7
Bergen	39,271	47,075	53,686	19·7	14·0
Trondjhem	22,544	23,979	25,051	6·4	4·5
Stavanger	21,645	23,911	23,930	10·5	0·1
Drammen	18,851	19,601	20,684	4·0	9·7
Christiansund	12,191	13,022	12,831	6·8	− 1·5
Fredrikstad	9,672	11,212	12,463	15·9	11·2

7. *Cape Colony.*

The population of this colony on the 5th April last was 1,525,739, of which 376,812 are European or white and 847,542 aboriginal natives. It is difficult to compare the results of this census with those of previous years, for not only have the census districts been changed, but the whole colony now comprises what were three separate divisions which were enumerated at three different periods. Cape Colony now consists of (1) Cape Colony proper, (2) Griqualand west, and (3) the territories known collectively as Transkeian territories. Here, even more than in India, special care had of course to be taken with the aboriginals, owing to these latter being unable to understand the uses of a census. Various devices had to be employed to get at certain facts; *e.g.*, as the computation of age by years is almost unknown to the natives, the enumerators were obliged to deduce the age by calculating the time that had elapsed since some locally interesting event, which took place about the time of a native's birth. A knowledge of the history of his district was therefore almost essential to an enumerator.

The last census in Cape Colony *proper* was in 1875, when the population was given as 720,984. It is now 955,284, an increase of 234,300, or 32·5 per cent. in the sixteen years (equivalent to 19·22 per cent. per decennium). Cape Town itself has a population of 51,100, against 33,239 in 1875 (the increase being equivalent to 30·84 per decennium). Kimberley, as might be expected, shows a very large increase—117 per cent., and is now the second town in the colony, with a population of 28,643.

Apart from a rush to the diamond mines, therefore, the colony as a whole shows a steady increase, without any phenomenal growth as in parts of America.

The following towns have more than 5,000 inhabitants:—

Cape Town	51,100	King William's Town	7,200
Kimberley	28,600	East London	6,900
Port Elizabeth	23,200	Claremont	6,200
Beaconsfield	10,500	Graaf Reinet	5,900
Grahams Town	10,500	Worcester	5,400
Paarl	7,700	Uitenhage	5,300

The two following tables show the increase since the last census for the different divisions of the colony, and the percentage of coloured to white inhabitants:—

	Year of last Census.	Population.		Increase.	Per Cent.
		At last Census.	1891.		
I. Cape Colony proper	1875	720,984	955,284	234,300	32·5
II. Griqualand West	'77	45,277	83,115	37,838	83·6
III. Transkeian territories...	'79	262,705	487,340	224,635	85·5
Total	—	1,028,966	1,525,739	—	—

Race Distinction.

	European or White.		Aboriginal.		All other Coloured.		Total Number.
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	
I. Cape Colony proper	337,000	35·28	340,405	35·63	277,879	29·09	955,284
II. Griqualand West........	29,469	35·46	36,436	43·84	17,210	20·70	83,115
III. Transkeian territories	10,343	2·12	470,701	96·59	6,296	1·29	487,340
Total	376,812	24·70	847,542	55·55	351,385	19·75	1,525,739

8. *Victoria.*

Two important facts are brought out by the census of 5th April last. The first is that Melbourne, during the last decade, has still further increased as compared with the rest of the colony. Victoria has now 274.926 inhabitants more than in 1881, and of these Melbourne claims no less than 205,626, while 43 per cent. of the whole population are located in the capital, against 33 per cent. in 1881. The other fact is the continued decrease in the gold mining district. The seven counties of Karakara, Gladstone, Bendigo, Dalhousie, Talbot, Grenville, and Grant, which include the goldfields to which a rush was made on the first discovery of the precious metal, show a decrease of 13,102 on their whole population. Grant is the only one that does not show a decrease individually, but this county is not wholly mining, and that the increase is due to the commercial portion is abundantly proved by the fact that while the increase for the whole county is 2,500, that of the seaport Geelong is 3,500, leaving a deficiency for the other parts of about 1,000. It will be noticed also that Ballarat, in the centre of the goldfields, has increased, but that Sandhurst and Castlemaine, in the same district, have decreased. In connection with this it may be mentioned that the maximum output of Victorian gold was over 3,000,000 ozs. in 1853, and that since 1856 it has steadily declined to 2,300,000 ozs. in 1859, 1,300,000 ozs. in 1869, 760,000 ozs. in 1860, and 615,000 ozs. in 1889, while the depopulation of the central mining district was first revealed at the census of 1881. From 1861 to 1871, the population increased very considerably. The counties showing the greatest increase (after Bourke, which includes Melbourne), are Bulu Bulu, Moira, and Lowan, all either agricultural or pastoral counties.

The Chinese question is a burning one all over Australia, it is consequently satisfactory to learn that in Victoria there are now only 8,137 Chinese (of which 376 only are women), while in 1881 there were 12,128 (259 women). The aborigines, including half-castes, number 584 against 780 in 1881, and 1,330 in 1871.

The following table gives the population of the five principal towns in the colony. The figures for 1881 do not agree with those usually given, owing to the fact that the latter include suburbs, which do not (except for the capital) appear in the preliminary return. The population is therefore given for the townships only:—

	1881.	1891.	Increase.	Increase per Cent.
Melbourne	283,373	488,999	205,626	72·55
Ballarat	39,958	43,376	3,418	9·09
Sandhurst	35,515	33,930	– 1,585	– 4·46
Geelong	19,208	22,622	3,414	17·73
Castlemaine	7,475	5,689	– 1,786	– 23·89
Whole colony	862,346	1,137,272	274,926	31·88

II.—*Urban Population in the United States in* 1890.

The following is reprinted from the *Census Bulletin* No. 52, dated 10th April, 1891:—

"The statistical part of this bulletin has been prepared under the direction of Mr. William C. Hunt, special agent in charge of the population division of the census office, to whose care and ability I am in a large measure indebted for the prompt publication of the population by minor civil divisions. In the preparation of the text I have had the benefit of the wide experience of Mr. Henry Gannett, geographer of the census office.

"In the published records of former censuses urban population has been defined as that element living in cities, or other closely aggregated bodies of population, containing 8,000 inhabitants or more. This definition of the urban element, although a somewhat arbitrary one, is used in the present discussion of the results of the eleventh census in order that they may be compared directly with those of earlier censuses. The limit of 8,000 inhabitants is, however, a high one, inasmuch as most of the distinctive features of urban life are found in smaller bodies of population. Recognising this fact, the discussion of the urban class was in 1880 extended in part to include all such bodies of population down to a limit of 4.000, a precedent which will be followed in the more extended publications of the eleventh census.

"Throughout the United States, with the exception of the New England States, there is no difficulty or uncertainty in carrying out either of the above definitions of urban population. Excepting in these States, municipal charters are granted only to dense bodies of population, and all such bodies are incorporated and their limits sharply defined by the Acts of incorporation. In the New England States, on the contrary, the general practice is to subdivide the counties into towns, which are, so far as area and distribution of population are concerned, equivalent to the townships of the States of the Upper Mississippi Valley. When certain conditions of population are fulfilled these towns are chartered bodily as cities. Thus these cities may contain considerable numbers of rural population, and, conversely, certain towns may contain dense bodies of population of magnitude sufficient to be classed as urban. It is therefore possible in these States to make only an approximate separation of the urban and rural elements. According to this definition the urban population of the country in 1890 was 18,235,670, the total population being 62,622,250. The urban population constituted in 1890 29·12 per cent. of the total population. Corresponding figures for the several censuses are given in the following table:—

Census Years.	Population of the United States.	Population of Cities.	Inhabitants of Cities in each 100 of the Total Population.
1790	3,929,214	131,472	3·35
1800	5,308,483	210,873	3·97
'10	7,239,881	356,920	4·93
'20	9,633,822	475,135	4·93
'30	12,866,020	864,509	6·72
'40	17,069,453	1,453,994	8·52
'50	23,191,876	2,897,586	12·49
'60	31,443,321	5,072,256	16·13
'70	38,558,371	8,071,875	20·93
'80	50,155,783	11,318,547	22·57
'90	62,622,250	18,235,670	29·12

"It will be seen that the proportion of urban population has increased gradually during the past century from 3·35 up to 29·12 per cent., or from one-thirtieth up to nearly one-third of the total population. The increase has been quite regular from the beginning up to 1880, while from 1880 to 1890 it has made a leap from 22·57 up to 29·12 per cent., thus illustrating in a forcible manner the accelerated tendency of our population toward urban life. The number of cities having a population of more than

8,000 increased from 6 in 1790 to 286 in 1880, whence it has leaped to 443 in 1890.

"This urban element is distributed very unequally over the country, as is shown below by geographical divisions:—

Geographical Divisions.	Urban Population.	Per Cent of entire Urban Population.
Total	18,235,670	100·00
North Atlantic division	8,976,426	49·22
South ,,	1,420,455	7·79
North Central division	5,791,272	31·76
South ,,	1,147,147	6·29
Western division	900,370	4·94

"The North Atlantic division contains nearly one-half the urban population of the country, while the North Atlantic and North Central divisions together contain nearly five-sixths of it.

"In the North Atlantic division 51·58 per cent., or more than one-half the entire population, is contained in cities of 8,000 or more inhabitants. During the past ten years the urban element in this division has increased 43·53 per cent., while the total population has increased but 19·95 per cent. This relative increase is well distributed among the several States of this division with the single exception of Vermont, whose urban element has increased but little. In Maine, Vermont, Massachusetts, and New York the numerical increase in the urban element is greater than the increase of the total population. so that in these States the rural population has actually diminished in number. This rapid increase in the urban element of the North Atlantic division is due to the equally rapid extension of manufactures and commerce, requiring the aggregation of the inhabitants into compact bodies.

"In the North Central division 25·90 per cent., or a trifle more than one-fourth of the inhabitants, are classed as urban. In the past ten years the number of the urban element has nearly doubled, while the total population has increased but 28·78 per cent. The number of cities has increased from 95 in 1880 to 152 in 1890. The increase in number of urban population, viz., 2,766,593, is comprised mainly in a few large cities; thus the total increase in the eleven largest cities, comprising a trifle more than one-half of the urban population of this section, is 1,446,089, or more than half the entire gain in urban population in this division.

"In the South Atlantic and South Central divisions the proportion of urban population is comparatively small, being in the first named but 16·04 per cent. of the entire population, or less than one-sixth, and the second but 10·45 per cent., the proportion of urban to the total population in all the southern States being less than 13 per cent. The industries of these States are mainly agricultural, and while manufactures and mining are making some progress, they are still in their infancy. The progress in these branches of industry may be measured roughly by the growth of the urban element. In 1880 this element numbered 1,616,095, and constituted less than 10 per cent. of the population. In 1890 it numbered 2,567.602, having increased 58·88 per cent., while the total population had increased but 20·07 per cent.

"In certain of these States the proportion of urban population is still trifling; thus, in Mississippi it constitutes but 2·64, in North Carolina but 3·87, and in Arkansas but 4·89 per cent. of the total population.

"Mining, commerce, and manufactures in the western States and territories are in a much more advanced stage, as is shown by the greater proportion of the urban element. Considered as a whole, the urban element in the western division in 1890 constituted 29·74 per cent. of the whole population, while in 1880 it constituted 23·97 per cent. It has therefore gained somewhat more rapidly than the total population.

"In 1880 there was but one city, New York, which had a population in excess of a million. In 1890 there were three, New York, Chicago, and Philadelphia.

"In 1870 there were but fourteen cities each containing more than 100,000 inhabitants. In 1880 this number had increased to twenty, and in 1890 to twenty-eight.

"The number and relative rank of cities having a population of 100,000 or more at the date of each of these censuses are set forth in the following table:—

Rank.	1890.	1880.	1870.
1	New York, N. Y.	New York, N. Y.	New York, N. Y.
2	Chicago, Ill.	Philadelphia, Pa.	Philadelphia, Pa.
3	Philadelphia, Pa.	Brooklyn, N. Y.	Brooklyn, N. Y.
4	Brooklyn, N. Y.	Chicago, Ill.	Saint Louis, Mo.
5	Saint Louis, Mo.	Boston, Mass.	Chicago, Ill.
6	Boston, Mass.	Saint Louis, Mo.	Baltimore, Md.
7	Baltimore, Md.	Baltimore, Md.	Boston, Mass.
8	San Francisco, Cal.	Cincinnati, Ohio	Cincinnati, Ohio
9	Cincinnati, Ohio	San Francisco, Cal.	New Orleans, La.
10	Cleveland, Ohio	New Orleans, La.	San Francisco, Cal.
11	Buffalo, N. Y.	Cleveland, Ohio	Buffalo, N. Y.
12	New Orleans, La.	Pittsburg, Pa.	Washington, D. C.
13	Pittsburg, Pa.	Buffalo, N. Y.	Newark, N. J.
14	Washington, D. C.	Washington, D. C.	Louisville, Ky.
15	Detroit, Mich.	Newark, N. J.	
16	Milwaukee, Wis.	Louisville, Ky.	
17	Newark, N. J.	Jersey City, N. J.	
18	Minneapolis, Minn.	Detroit, Mich.	
19	Jersey City, N. J.	Milwaukee, Wis.	
20	Louisville, Ky.	Providence, R.I.	
21	Omaha, Neb.		
22	Rochester, N. Y.		
23	Saint Paul, Minn.		
24	Kansas City, Mo.		
25	Providence, R. I.		
26	Denver, Colo.		
27	Indianapolis, Ind.		
28	Allegheny City, Pa.		

"The following table shows the fifty principal cities of the United States, in the order of their rank, giving the population in 1890 and 1880, and the increase from 1880 to 1890:—

Fifty Principal Cities in 1890 *in the order of their Rank.*

Cities.	Population.		Increase.	
	1890.	1880.	Number.	Per Cent.
New York, N. Y.	1,515,301	1,206,209	309,002	25·62
Chicago, Ill.	1,099,850	503,185	596,665	118·58
Philadelphia, Pa.	1,046,964	847,170	199,794	23·58
Brooklyn, N. Y.	806,343	566,663	239,680	42·30
Saint Louis, Mo.	451,770	350,518	101,252	28·89
Boston, Mass.	448,477	362,839	85,638	23·60
Baltimore, Md.	434,439	332,313	102,126	30·73
San Francisco, Cal.	298,997	233,959	65,038	27·80
Cincinnati, Ohio	296,908	255,139	41,769	16·37
Cleveland, Ohio	261,353	160,146	101,207	63·20
Buffalo, N. Y.	255,664	155,134	100,530	64·80
New Orleans, La.	242,039	216,090	25,949	12·01
Pittsburg, Pa.	238,617	156,389	82.228	52·58
Washington, D. C.	230,392	177,624	52,768	29·71
Detroit, Mich.	205,876	116,340	89,536	76·96
Milwaukee, Wis.	204,468	115,587	88,881	76·90
Newark, N. J.	181,830	136,508	45,322	33·20
Minneapolis, Minn.	164,738	46,887	117,851	251·35
Jersey City, N. J.	163,003	120,722	42,281	35·02
Louisville, Ky.	161,129	123,758	37,371	30·20
Omaha, Neb.	140,452	30,518	109,934	360·23
Rochester, N. Y.	133,896	89,366	44,530	49·83
Saint Paul, Minn.	133,156	41,473	91,683	221·07
Kansas City, Mo.	132,716*	55,785	76,931	137·91
Providence, R. I.	132,146	104,857	27,289	26·02
Denver, Colo.	106,713	35,629	71,084	199·51
Indianapolis, Ind.	105,436	75,056	30,380	40·48
Allegheny, Pa.	105,287	78,682	26,605	33·81
Albany, N. Y.	94,923	90,758	4,165	4·59
Columbus, Ohio	88,150	51,647	36,503	70·68
Syracuse, N. Y.	88,143	51,792	36,351	70·19
Worcester, Mass.	84 655	58,291	26,364	45·23
Toledo, Ohio	81,434	50,137	31,297	62·42
Richmond, Va.	81,388	63,600	17,788	27·97
New Haven, Conn.	81,298	62,882	18,416	29·29
Paterson, N. J.	78,347	51,031	27.316	53·53
Lowell, Mass.	77,696	59,475	18,221	30·64
Nashville, Tenn.	76,168	43,350	32,818	75·70
Scranton, Pa.	75,215	45,850	29,365	64·05
Fall River, Mass.	74,398	48,961	25,437	51·95
Cambridge, Mass.	70,028	52,669	17,359	32·96
Atlanta, Ga.	65,533	37,409	28,124	75·18
Memphis, Tenn.	64,495	33,592	30,903	92·00
Wilmington, Del.	61,431	42,478	18,953	44·62
Dayton, Ohio	61,220	38,678	22,542	58·28
Troy, N. Y.	60,956	56,747	4.209	7·42
Grand Rapids, Mich.	60,278	32,016	28,262	88·27
Reading, Pa.	58,661	43,278	15,383	35·54
Camden, N. J.	58,313	41,659	16,654	39·98
Trenton, N. J.	57,458	29,910	27,548	92·10

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* Includes 13,048 population which by recent decision of Missouri State supreme court is now outside the limits of Kansas City.

"The following table shows the number of cities classified according to population at the date of each census:—

Number of Cities Classified according to Population.

Census Years.	Total.	8,000 to 12,000.	12,000 to 20,000.	20,000 to 40,000.	40,000 to 75,000.	75,000 to 125,000.	125,000 to 250,000.	250,000 to 500,000.	500,000 to 1,000,000.	1,000,000 and above.
1790	6	1	3	1	1	—	—	—	—	—
1800	6	1	—	3	2	—	—	—	—	—
'10	11	4	2	3	—	2	—	—	—	—
'20	13	3	4	2	2	2	—	—	—	—
'30	26	12	7	3	1	1	2	—	—	—
'40	44	17	11	10	1	3	1	1	—	—
'50	85	36	20	14	7	3	3	1	1	—
'60	141	62	34	23	12	2	5	1	2	—
'70 ...	226	92	63	39	14	8	3	5	2	—
'80	286	110	76	55	21	9	7	4	3	1
'90	443	173	105	91	35	14	14	7	1	3

"The table on the following page shows by States and groups of States the total population in 1880 and 1890, the urban population in the same years, the number of cities, and the proportion which the urban population bears to the total population."

Urban Population in 1890 *and* 1880, *by States and Groups of States.*

States and Territories.	Total Population.		Urban Population.		Number of Cities and Percentage of Urban of Total Population.			
	1890.	1880.	1890.	1880.	1890.		1880.	
North Atlantic division	17,401,545	14,507,407	8,976,426	6,254,096	195	51·58	137	43·11
Maine	661,086	648,936	130,346	87,100	8	19·72	5	13·42
New Hampshire	376,530	346,991	103,058	76,200	5	27·37	5	21·96
Vermont	332,422	332,286	26,350	21,500	2	7·93	2	6·47
Massachusetts	2,238,943	1,783,085	1,564,931	1,042,039	47	69·90	33	58·44
Rhode Island	345,506	276,531	272,571	175,500	10	78·89	6	63·46
Connecticut	746,258	622,700	377,433	266,100	16	50·58	13	42·73
New York......................	5,997,853	5,082,871	3,568,708	2,591,267	43	59·50	33	50·98
,, Jersey	1,444,933	1,131,116	780,978	495,650	20	54·05	12	43·82
Pennsylvania	5,258,014	4,282,891	2,152,051	1,498,740	44	40·93	28	34·99
South Atlantic division	8,857,920	7,597,197	1,420,455	942,387	36	16·04	23	12·40
Delaware	168,493	146,608	61,431	42,478	1	36·46	1	28·97
Maryland	1,042,390	934,943	465,479	351,665	4	44·65	3	37·61
District of Columbia ...	230,392	177,624	230,392	159,871	1	100·00	2	90·01
Virginia	1,655,980	1,512,565	221,965	148,230	9	13·40	6	9·80
West Virginia	762,794	618,457	53,529	30,737	3	7·02	1	4·97
North Carolina..............	1,617,947	1,399,750	62,544	26,615	5	3·87	2	1·90
South ,, ...	1,151,149	995,577	78,915	60,020	3	6·86	2	6·03
Georgia..........................	1,837,353	1,542,180	199,169	112,881	7	10·84	5	7·32
Florida	391,422	269,493	47,031	9,890	3	12·02	1	3·67

Urban Population in 1890 *and* 1880, *by States and Groups of States—Contd.*

States and Territories.	Total Population.		Urban Population.		Number of Cities and Percentage of Urban of Total Population.			
	1890.	1880.	1890.	1880.	1890.		1880.	
North Central division	22,362,279	17,364,111	5,791,272	3,024,679	152	25·90	95	17·42
Ohio	3,672,316	3,198,062	1,159,348	745,894	29	31·57	20	23·32
Indiana	2,192,404	1,978,301	400,567	244,063	18	18·27	11	12·34
Illinois	3,826,351	3,077,871	1,483,324	732,021	24	38·77	18	23·78
Michigan	2,093,889	1,636,937	546,095	271,566	20	26·08	12	16·59
Wisconsin	1,686,880	1,315,497	424,546	212,431	17	25·17	9	16·15
Minnesota	1,301,826	780,773	369,315	107,623	6	28·37	4	13·78
Iowa	1,911,896	1,624,615	269,230	152,578	12	14·08	10	9·39
Missouri	2,679,184	2,168,380	703,743	459,369	8	26·27	5	21·18
North Dakota	182,719	36,909	—	—	—	—	—	—
South ,,	328,808	98,268	10,177	—	1	3·10	—	—
Nebraska	1,058,910	452,402	259,048	43,521	8	24·46	2	9·62
Kansas	1,427,096	996,096	165,879	55,613	9	11·62	4	5·58
South Central division	10,972,893	8,919,371	1,147,147	673,708	37	10·45	20	7·55
Kentucky	1,858,635	1,648,690	276,733	198,603	7	14·89	5	12·05
Tennessee	1,767,518	1,542,359	202,337	99,527	5	11·45	4	6·45
Alabama	1,513,017	1,262,505	89,013	45,845	4	5·88	2	3·63
Mississippi	1,289,600	1,131,597	34,098	11,814	3	2·64	1	1·04
Louisiana	1,118,587	939,946	264,496	224,099	3	23·65	2	23·84
Texas	2,235,523	1,591,749	225,247	80,682	11	10·08	5	5·07
Indian territory	—	—	—	—	—	—	—	—
Oklahoma	61,834	—	—	—	—	—	—	—
Arkansas	1,128,179	802,525	55,223	13,138	4	4·89	1	1·64
Western division	3,027,613	1,767,697	900,370	423,677	23	29·74	11	23·97
Montana	132,159	39,159	24,557	—	2	18·58	—	—
Wyoming	60,705	20,789	11,690	—	1	19·26	—	—
Colorado	412,198	194,327	153,623	50,449	4	37·27	2	25·96
New Mexico	153,593	119,565	—	—	—	—	—	—
Arizona	59,620	40,440	—	—	—	—	—	—
Utah	207,905	143,963	59,732	20,768	2	28·73	1	14·43
Nevada	45,761	62,266	—	10,917	—	—	1	17·53
Idaho	84,385	32,610	—	—	—	—	—	—
Alaska	—	—	—	—	—	—	—	—
Washington	349,390	75,116	98,765	—	3	28·27	—	—
Oregon	313,767	174,768	56,917	17,577	2	18·14	1	10·06
California	1,208,130	864,694	495,086	323,966	9	40·98	6	37·47

Recapitulation by Groups.

Geographical Divisions.	Total Population.		Urban Population.		Number of Cities and Percentage of Urban of Total Population.			
	1890.	1880.	1890.	1880.	1890.		1880.	
The United States	62,622,250	50,155,783	18,235,670	11,318,547	443	29·12	286	22·57
North Atlantic division	17,401,545	14,507,407	8,976,426	6,254,096	195	51·58	137	43·11
South ,,	8,857,920	7,597,197	1,420,455	942,387	36	16·04	23	12·40
North Central division	22,362,279	17,364,111	5,791,272	3,024,679	152	25·90	95	17·42
South ,,	10,972,893	8,919,371	1,147,147	673,708	37	10·45	20	7·55
Western division	3,027,613	1,767,697	900,370	423,677	23	29·74	11	23·97

[Here follows a table giving the population of all towns of over 8,000 inhabitants, which it has been judged unnecessary to reproduce here.]

"In defining what constitutes a city in each case the census office has consistently maintained the policy of including only such population as lives within the charter limits, because no other defined limits exist. In many cases, however, this does not give to the city all the population which naturally belongs to it. There may be populous suburbs, which are to all intents and purposes parts of the city, whose inhabitants transact business within the city, who are served by the same post office, &c., but who, living without the charter limits, are not included in the city's population. Of this our greatest city, New York, is a forcible example. Within a radius of 15 miles of the city hall on Manhattan Island the people are in effect citizens of New York, so far as their business and social interests go, although politically they live in different cities, counties, and States. This body of population, the commercial metropolis of the country, contains a population considerably in excess of 3 millions, or two-thirds that of London, which is, similarly, a congeries of municipalities. Next to London, New York and its suburbs form the largest city of the globe. Other cases are those of Saint Paul and Minneapolis, whose corporate limits join one another, and Bristol, Tenn., and Bristol, Va., two corporations whose line of division follows the middle of the main street of the city, and which have a joint population of 6,229. Texarkana, Tex., and Texarkana, Ark., is a similar case. Knoxville, Tenn., has large suburbs immediately adjoining, whose population would, if added, increase it to very nearly 40,000 inhabitants.

"The rate of growth of many of these cities, especially those situated west of the Mississippi river, has been amazing. Chicago has added over half a million to her inhabitants, thus more than doubling her size in ten years. Minneapolis, Saint Paul, Omaha, Kansas City, and Denver have expanded to triple or quadruple their former size, while all over the west smaller cities have sprung up as if by magic."

III.—*The Zone System on the Hungarian Railways.* By Dr. Ambroise Neményi, Member of the Hungarian Parliament. (Translated from the *Revue d'Economie Politique*, July, 1891.)

The reforms which, in the course of the last few years, have been effected in the Hungarian State railways, have raised a commotion which is still very far from being allayed. From one end of Europe to the other, public opinion insists that railways should now cease to be a world by themselves in order to become wholly subordinate to the requirements of the public. Against this movement, all the arguments and proofs of so-called specialists are vain, it being henceforth quite impossible to keep up in the public the notion that high rates are more advantageous than low ones. No one will now induce them to admit such an absurdity.

Had the reforms in Hungarian State railways no other result than to upset this belief, imposed with so much apparent superiority on the people, we should, for that reason alone, regard the work accomplished as a useful one. But how many changes have we not seen during the last ten years? Only the other day it was thrust upon us as an axiom by those who were held to be best acquainted with the subject, that the State was incapable of properly administrating the railways. And now the State has proved irrefutably, by facts, that it is perfectly capable of doing so; nay more, that it can do so more cheaply than the private companies. Besides, we must remember that Hungary would have been incapable of bearing, without running the greatest risks, the effects of protection, had she not completed her system of economic defence.

As soon as the Hungarian government recognised that it had a mission of public utility to fulfil, it began by reducing systematically the charges for transporting goods; the next step is evidently to set about reducing also the passenger rates as far as possible.

No sooner did this excellent idea take a practical form than it brought down the storm, and the famous specialists with one accord protested loudly. Had I the slightest wish for an argument, it would not be difficult for me to name a celebrated French economist who, upon the first mention of the proposed reform in the passenger rates, set about proving, in a series of articles, that if it were carried out, Hungary would inevitably become bankrupt. I rather suspect that this illustrious author is perhaps now disposed to admit that his prediction has not been exactly realised. How many people there are who in considering this question have since changed their minds.

When the question was first discussed, the profession seemed to consider that a reform of this nature might be possible in a country where the population was dense, rich, and industrially prosperous, because there the number of travellers might be expected to increase, but that no such result could be hoped for in Hungary, where the distances are great, the population scattered, and purely agricultural. But since experience has shown that the new system was crowned with success here, these gentlemen were not long in changing their reasoning, and saying that a reduction of rates was possible in a country of a peculiar nature like Hungary, but there only; on the other hand, in countries with a dense population, and endowed with large industries, it could only lead to the most deplorable consequences.

On the first mention of this reform in Hungary, the most contradictory opinions were showered against it. It was shown with mathematical accuracy, that with any appreciable reduction in prices, the existing means of transport would be absolutely insufficient: as if statistics had not proved that on an average two-thirds of all the seats in a compartment were unoccupied; they said that new rails would have to be laid, that the stations would be too narrow, that a heap of new carriages and engines would have to be provided, and to finish up, they enumerated all the accidents, collisions, and catastrophes which would infallibly result from the colossal traffic engendered by this "criminal" innovation.

Such means have never failed in their effect, and governments, like the public, have felt their influence.

Fortunately there was at the head of affairs in Hungary a man on whom such superstitions had no hold. Animated with a spirit which rejoices in hardy initiatives, and full of confidence in progressive ideas, *M. Baross*, Minister of Commerce, threw himself heart and soul into the reform.

Leaving aside those Utopian ideas which a few German writers, like MM. Perrot and Engel, have extolled, and avoiding an exaggerated radicalism, he created a system of his own, the result of his own observations and experience, a system which did not tend to upset everything, but which was, in the true sense of the word, a tariff reform.

In the following few lines I propose to consider not so much the system itself, the details of which are probably known to the reader, as the results, in the idea that it may be useful to throw a little light on the subject in France, since it is in that country that the most erroneous ideas on the subject are entertained. It is, besides, of the greatest importance that the facts as they are observed should be brought before the public in their entirety, for the better they are known, the more surely also will they obtain the victory over habit, and cause the welfare of society to prevail over personal interests.

I.

Before the reform in Hungary, the passenger rates on the State railways were very high. The administration had certainly at last become convinced that this was against common sense, and had tried to remedy it by arbitrary special rates, to which people had got accustomed: such for example as return, season, circular tickets, schoolboys' and workmen's tickets, so that in the end there was only one class which paid the regular fares, and that was, as elsewhere, precisely the poorest and most inexperienced class. Hence the number of travellers remained stationary, and, financially, the results were poor. In this state of affairs the idea of reform did not take long to germinate and ripen in the active mind of the minister. I will first remind my readers that the new system establishes a distinction between long and short distances. The short distance, or local traffic, comprises two zones, which generally extend as far as the first and second stations, and in which the price is the same as the prices on tramways, *i.e.*, for the first zone (third class), ten kreuzers ($2\frac{2}{5}$*d.*), second zone, fifteen kreuzers ($3\frac{3}{5}$*d.*). The long distance traffic includes fourteen zones, of which the first extends to twenty-five kilometres; from the second to the eleventh, each zone covers fifteen kilometres; the twelfth and thirteenth cover twenty-five, and the fourteenth covers all journeys of more than two hundred and twenty-five kilometres; so that a journey of one thousand kilometers costs the same as one of two hundred and twenty-five. The prices by zones correspond to a reduction, on an average, of 20 per cent. on the old prices, but it is not the same for all distances; thus in the first zone it is 55 per cent., in the second 65 per cent.; similarly for long journeys the diminution is very considerable, amounting to 77 per cent. if the journey extends to six hundred kilometres, and even 85 per cent. for one thousand kilometres.

This shows what the fundamental principle was. It had been proved, under the old system, that only 5 per cent. of the whole number journeyed less than twelve kilometres, while only 1 per cent. ventured to pass the limit of three hundred kilometres. The object was therefore to increase the number of very short and very long journeys.

It was certainly not admissible that so few people felt the want of visiting their nearest neighbours, and it was equally inadmissible that such a very small fraction wanted to travel more than three hundred kilometres. It came out unmistakeably, on the contrary, that the desire to travel was fettered, and that the State had only to try to satisfy this want in order to gain by it. It was also as practicable as it was liberal to render long journeys accessible to the poorer classes. The results have completely verified this expectation. The new tariff came into operation on the 1st August, 1889, and if we compare the last year of the old system (August, 1888—July, 1889) with the first year of the new (1889-90), the net result is as follows:—The number of travellers rose from five to thirteen millions, the receipts from travellers and their luggage rose from 9,400,000 florins to 11,400,000 florins, *i.e.*, by two millions,[1] or 21 per cent.; we may notice also that the ten months already elapsed of the second year (1890-91), point to a very considerable increase compared with the corresponding period of the preceding year.

The details of this increase are very instructive. More than 50 per cent. of the journeys come under the head of local traffic, *i.e.*, they do not extend beyond the first two stations at tramway prices. The number of travellers who went into the fourteenth zone was 160,000 in 1888-89; it was 500,000 in 1889-90. The increase is still more striking if we make a distinction between slow and express trains. The latter, which in 1888-89 carried only 28,000 passengers as far as the fourteenth zone, in 1889-90 carried already 118,000, producing a revenue of 748,000 florins. The mail trains in 1888-89 carried, over a similar distance, 131,000, against 382,000 in 1889-90, with a revenue of 1,800,000 florins.

This shows that the desire to travel was keenly felt, but that it was paralysed by the cost. It is quite comprehensible that this effect should be more especially noticed in the local traffic, since the poorer classes were, so to speak, unacquainted with railways, and similarly, it was quite impossible for them to pay the price of a long journey. In both respects our State railways have realized a brilliant profit; for, of the increase of 2,430,000 florins (*sic*)[2] in the receipts during the first year, 600,000 were from the local traffic, and 1,300,000 from long journeys.

I intend to give here only the results of the reform under consideration, but I cannot refrain from one general remark, which will make the matter more easy of comprehension. When the first reports of the working of the zone system were made public, M. Paul Leroy-Beaulieu at once objected, that first of all we should define clearly the particular causes which had led to this increase; on this point he laid stress on an argument to which he attributed so much importance that he was never tired of repeating it. He called it the "deviation of traffic." It was impossible to tell, said he, whether the Hungarian lines had not attracted the traffic of rival lines, and in particular that of the (Austro-Hungarian) State railway, which belongs to a company. In this case we could not prove that the number of travellers had increased, but only that one line had attracted to itself a considerable number of pre-existing travellers, owing to the extreme moderation of its charges. Although this argument, even had it been in agreement with facts, would have proved nothing against the zone system; although it is evident that, so far as the colossal increase in the local traffic is concerned, there can be no question of rival lines, that is, of traffic turned aside, yet I am anxious to clear up this point, because the weight of this economist's opinion might easily lead others into error.

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[1] See below.

[2] See above.

A single glance at the map would have shown M. Leroy-Beaulieu that his supposition was quite wrong. The Hungarian railways have hardly any rivalry with the Austro-Hungarian State railway, except on two lines, *and on those two lines the company has at once adopted purely and simply the zone system.* For instance, not a halfpenny more is paid to go from Vienna to Buda-Pesth by the one railway than by the other. There was therefore no reason why any particular traveller should leave one route for the other; as a matter of fact such a transfer of passengers has not taken place, for the number of travellers on the (Austro-Hungarian) State railway has appreciably increased wherever the zone system has been adopted. To complete the information on this point, note also that the second railway which is in competition with the Hungarian (the Southern) did not, it is true, accept the zone system, but on account of the competition, it was obliged to considerably reduce its fares, which gave it an increase in the number of its customers, so that the State railway could not have attracted any from it.

It is thus very evident that the increase in the traffic on Hungarian railways has not been produced by any artificial "deviation," but that it is really and solely due to the low prices, and also that in all probability the same causes would produce the same results elsewhere. Another proof of the universality of the law is furnished by the fact that certain of the more important private lines (like that of Kaschau-Oderberg and others), which have only a local importance, have obtained the same results by adopting the zone system.

Another very important consequence of the innovation is that seeing the economic results obtained, the Austrian government was obliged to yield to public opinion, and following the example set by Hungary, to adopt the principle of the system with a few alterations in the details (alterations, by the way, which did not succeed too well). And the zone system, with its large reduction in fares, once introduced into Austria, in consequence of the Hungarian experience, has yielded the same results: increase in the traffic and the receipts. This is a striking confirmation of the results obtained in our own country, and it also shows that M. Leroy-Beaulieu's suppositions were as gratuitous as arbitrary.

Similarly, all the fears of a certain class of conservatives in Germany, that such a reduction in fares must lead to a regular migration of the people, or to use their own somewhat bitter word, to a "vagrancy," have been shown to be without foundation.

This last idea of course concerned only the poorer classes, who, they seemed to think, were mad enough, as soon as they were able to get hold of a railway ticket, to crowd into the third and fourth class carriages, for the sole purpose of being dragged about for long distances, whether the heat were tropical or the cold Siberian. But, fortunately, experience has shown that these inferior classes, to whom these senseless ideas were attributed, are after all more reasonable than certain sections of the so-called "guiding" classes.

Another prediction, that the capital would draw all the traffic to itself, to the detriment of provincial towns, which would certainly decay from lack of business, has not been realised either. On the contrary, the greatest increase in the traffic only affects the neighbourhood where people naturally find the greatest advantage in keeping up intercourse. If they repair to the neighbouring town, it is because they find there the seat of administration, the courts of justice, the markets where they can buy and sell, and whence they derive their slender profits. So the provincial towns show an unwonted movement, and the relations which they keep up with the country round about have increased tenfold, proving that the necessity for intercourse really existed before, but that it could not be satisfied, simply because the railways were not accessible to all. Now that they are so, a new class of travellers has recourse to it; but far from creating a migration or "vagrancy," they have increased the traffic as they should do in order to satisfy the wants of the greatest number.

In the course of a year the number of seats occupied in a train has increased from 24 to 34 per cent., and there is reason for hoping that this abundance will still further increase.

It results therefore from what I have said, that it is quite a mistaken notion to suppose that for every seat occupied there must necessarily be two or three empty, and the simple fact of this improved working falsifies the prediction that one of the effects of the new tariff would be to augment, at considerable cost, the rolling stock, and the number of employés. As a matter of fact, fewer men are required, and the reason for this is obvious, when we remember that the large stations which had formerly not less than some three hundred tickets to issue, have now only ninety-two; while in the small stations the number is reduced by half. It is obvious therefore that the management and accounts, in other respects so complicated, are thus considerably simplified. To this is joined also the decentralisation of the sale of tickets, which now takes place at all large hotels, tobacconists, postal and telegraph offices, and in most restaurants, so that in time the public will end by knowing all the details of the charges, and, as at the same time the transport of luggage has been simplified, the service requires fewer employés than formerly.

Thus none of the melancholy forecasts as to the effects of the reduction have been realised; but the new system is more advantageous, both on economic and financial grounds; it has increased the value of the receipts to such an extent that all the private lines are hastening to adopt it with the sole object of increasing their own; so that in a short time the system will probably be adopted in all central Europe. Already it is in force over nearly all Austria and Hungary; it is extending gradually towards the east, whilst in Germany a powerful current of opinions has set in in its favour. Chambers of commerce demand this reform of their governments; it is (so to speak) on the programme of parliaments. M. de Maybach, Prussian Minister of Railways, has rendered his position untenable precisely because he is obstinately opposed to it; and it is now certain that Germany will shortly have effected a reform in its fares. The same ideas are gaining ground in Scandinavia and in England, even in Russia people are interested in them; so that there is no doubt this progressive idea will prevail in all Europe, against all opposition and personal interests. On that day all will recognise that the Hungarian statesman to whose initiative we owe this reform, and who has known how to make it prevail, has rendered a most important service to the whole of Europe.

II.

After having established the reform in the passenger fares, M. de Baross attacked the charges levied for the transportation of goods, an object certainly not less important than the other. For some time past there has existed in Hungary a desire to see the rates for the transportation of goods lowered. Ten years ago it became a necessity when Germany inaugurated a system of protectionist customs, which, except in France, are everywhere being lowered. Hungarian agricultural products suffered necessarily from having the German markets, hitherto one of their most important outlets, shut against them. The whole commercial policy of Hungary had to change front in the middle of battle; thanks to the government, which directed the produce of the country on to the commercial port of Fiume, this manœuvre was safely executed. The exceptional rates accorded on this line extended to all the exports of importance. A ministerial report shows that the reductions for the period 1880-86, amounted to 36 per cent. for wheat, more than 45 per cent. for wood, and more than 38 per cent. for alcohol. It was thanks to these privileges that the Hungarian export trade was enabled to resist the dangers of protection, besides which, Fiume by this means became a much frequented port, the importance of which, curiously enough, has not been yet realised in France.

But as these reductions were only effected by the old method of allowances, which was advantageous only to a few large exporters and producers, the minister of commerce resolved to undertake in this respect also a radical and definite reform.

In all the inquiries and official preliminaries that had this question for object, the same wants and complaints had always been repeated. Even more than of the high prices, people complained of the variety in the rates, of their complex nature, and at every sitting it was recognised that the first thing to be done was to concentrate the railways under one administration.

This preliminary reform has been carried out. The principal Hungarian lines are now under one authority, that of the State. Their purchase had been begun under pressure from the public, and I think this same process will be repeated in every country. The State having begun by acquiring certain lines, established a working system which satisfies economic views, for if it had not, its action would have been devoid of reason. The State cannot say, like a certain famous grand duke, "I do not like war, it spoils armies." When sacrifices are made to take the railways away from the companies, we must know beforehand with what object they are made. As soon as one region enjoys the advantages of a central administration, the others soon protest, because a new phase in the conditions of work and commercial traffic is begun at the State's expense, and generally in favour of those provinces which, economically speaking, are the strongest. Whether it will or no, the State must continue its purchases. The government which embarks on this way must be resolved to go on to the end, for the better the lines are worked, the less it can avoid continuing as it has begun. This is what has happened in Hungary, and when the State reaches the limit of its acquisitions, the urgent want of a tariff reform is felt much more than when they were administered by private companies. The distinctive characters of a satisfactory economical tariff have been pointed out dozens of times, and are always the same: cheapness, equality, and simplicity. I will now show shortly how the new Hungarian tariff satisfies these three conditions.

Cheapness is quite a relative quality, and it is possible that railways in this respect may make more progress than even the most enlightened suspect. Some, starting from another point of view, ask themselves if the reduction in the charges can be accompanied by a sufficient increase in the traffic to cover the deficit in the receipts. Opponents of reduction say especially that the number of travellers may be indefinitely increased by a radical reduction, but that the transportation of goods has its limits so exactly defined that the cheaper rates would not increase it appreciably. To these I would reply that cheapness is a much more important element in the transportation of goods than of persons.

For every journey undertaken, and even the shortest journey by the poorest man, we must reckon, when it is a question of people, not only the price, but also the time, the fatigue and the loss occasioned by the stoppage of work; whilst for goods, the only consideration is the price. It is almost impossible to imagine the progress which the interior commerce of a country can make with the help of a general reduction in charges suitable to the circumstances of each particular country.

We know pretty fairly the quantity of goods destined to leave the country; for instance, we know that on an average Austria-Hungary sends abroad so many hundredweight of wheat, flour, wood, but who can tell what quantity will be sent about *in* the country, if railways are made accessible to those goods whose prices are modest? A man of great authority in these matters, Baron de Weber, laughs a little, it is true, at those enthusiasts who dream of an ideal state of things, which would enable anyone to say off-hand how much it would cost to send a hundredweight of salt from Constantinople to Paris. "The utilisation of railways," according to him, "whether they belong to the State or to private individuals, is a commercial transaction, with respect to which demand and supply, intensity of want and net cost, play as important a part as in any other transaction of this kind."

All this, I say, is true up to a certain point, in so far as it concerns *international* traffic, but it is not the same with the *internal* traffic, where the factors are very accurately known, and with respect to which the administration should take no measures which are not at the same time of advantage to the public. There is really no reason why everyone should not be able to calculate on his fingers how much it would cost him to send a hundredweight of his goods from one province of a country to another. On the contrary, it is only when he *will* be able to calculate thus, that commercial intercourse will increase indefinitely.

As it is by the reduction in the passenger rates that railways have become accessible to the lower classes, so it is a reduction in the cost of working and transport that will render railways accessible to articles for which formerly they were useless.

There have been no special reductions amongst us for goods sent by quick train, nor for those in packages, for the simple reason that these articles are generally of greater value; nevertheless a much reduced tariff has been laid down for those articles when they are sent in quantities of six thousand kilogrammes (a little under six tons). But the charges have been considerably reduced for all articles exported in large quantities, such as cereals, flour, wood, &c., and important facilities have been granted for alimentary luxuries sent to large towns; lastly, very advantageous prices have been granted for returning not only to the capital, but also to the provincial chief towns which have a specialty for certain articles, and a dozen or so special rates have been fixed for various goods such as coal, firewood, stores, &c. This completes the number of special tariffs, which in other countries play such an important part.

As by the equalisation and reduction of passenger fares, all the free tickets have been abolished, as well as the special rates (excepting the workmen's tickets). so the whole system of allowances ceased on the introduction of the new rates for goods, thus there are now only the cheap fares, within everybody's reach.

This system has been in force since the 1st January, 1891, on all the lines belonging to the Hungarian State, and already we may perceive that it is not only a boon for the people, but that the financial results are most satisfactory, since the receipts instead of diminishing have increased. Which proves once again that with respect to transports, there is no better financial policy, if we are not afraid of the work to be done or of the initiative to be undertaken, than to give the public every facility for utilising the means placed at their disposal.

For the passenger as well as the goods traffic, the Hungarian minister has created a new opening, and at the present time it would certainly be difficult to say under which head his work will have the most advantageous and profitable results.

III.

I will now only add a few remarks of general interest to my short *exposé*. The last few years just passed re-echo to a vibration due solely to the idea of a social reform. However vague may be this idea, and to whatever excess it may formerly have carried men who blindly followed its impulse, I have a firm conviction that this tendency draws its origin solely from the most noble aspirations of the human soul, and that the future belongs to it. The atmosphere in which these ideas exist does not as yet permit us to distinguish their outline. Where great expectations are founded we must often expect to meet only with deceptions, so long as we are concerned only with experiments; for what is a boon to one person is too often only a burden to another. What pleases townsmen may be only a subject for complaint from country folk: the help given to and the insurance of workmen only weigh upon the manufacturers.

It is quite otherwise with the reduction in railway fares: this can but be of advantage to all. Cheap transportation for men and goods satisfies the interests of all orders of society. Opponents of progress ask who bears the cost of these improvements. The increase of cost is paid by the increase in the traffic, which only demands a little more freedom to attain enormous dimensions. And this increase may become very large before it is embarrassed by the insufficiency of the means of transport.

Reform in transportation is of a nature to lead to a vigorous expansion of the forces at our disposal, a fact which, advantageous to all, can displease very few. Is it not surprising that it is precisely these railroads, which we look upon as the type of progress, which are the home of the most red-tape conservatism? Is there a single practical man who could in good faith assure us that their working is not cumbersome and hampered by a thousand stupidities, and that the apparent superiority claimed by many a high official blinds him to the obligations which he has to fulfil towards the nation in whose service he is?

It was not with the impetuosity of the radical, but with the reflection of a statesman who understands the times in which he lives, and wishes to satisfy the wants of the greater number, that M. Baross introduced his reforms.

Whatever be the opposition these reforms meet with, I firmly believe that the great and worthy idea of economic and social reform which they realise will make its way in the world. And it will not be the least merit of this century, so much run down, in which we play at the same time the parts of spectators and actors, to have obtained that any proposal really salutary and beneficent to humanity can no longer be ignored or suppressed.

Those who shut their eyes to this will learn it to their cost.

IV.—*The Progress of Hippophagy in France and on the Continent, as shown from Statistics.* By M. Ch. Morot, Municipal Veterinary Surgeon at Troyes, &c., &c. [Extract from the *Report of the Agricultural Society of the Department of the Aube*, No. 195, March, 1891.] (Translated by Lees Knowles, M.P.[3])

"We make two great mistakes in France: one is that we exclude horseflesh, as a rule, from our tables, and the other, that we exclude women absolutely from parliament. Hippophagy and women's suffrage are two excellent things, which we discountenance, merely because we are not accustomed to them."

This in effect was the beginning of an election speech delivered by Madame Astié de Valsayre, as a parliamentary candidate, at a meeting held at Montmartre in September, 1889.

The orator who associated in that way gastronomy and politics was quite right, at all events so far as regards the food which Is. Geoffroy-Saint-Hilaire and his followers have so successfully advocated. Plenty of people, in fact, condemn horseflesh merely from hearsay, and refuse to eat it, simply because they do not know what it is like. On the one hand are persons who, like the sheep of Panurge of *Rabelais*, follow blindly the example of others, and on the other are persons whose prejudices are fixed.

Contrary to what the audience of Madame Astié de Valsayre might have believed, a fair number of Frenchmen and Frenchwomen have for a long time been eating a considerable quantity of horseflesh as food, which suited their palate as well as their purse. But these buyers of cheap meat are in favour of a hippophagy which is rational, and of horseflesh which is carefully inspected. They would all have quickly abandoned their favourite stalls if, instead of horses from proper slaughter-houses, they had been supplied with horses which were emaciated and cachectic, such as those in which M. Decroix delights. Practical hippophagists do not share the convictions of our worthy colleague in respect of food and health. They follow him half-way on the road which he has marked out, and stop, like sensible people, at the door of his pathological kitchen. Whoever has the good luck to take up the work of Is. Geoffroy-Saint-Hilaire must be careful to remember that exaggeration is a fault—even in hippophagy.

So great has been the recent increase in the number of consumers of solipedes (horses, asses, and mules), that in many places, apparently, the price of horseflesh has risen considerably in the last fifteen or twenty years, although it has not risen with such rapidity as in Denmark (A)[4] during the last few years, or quite recently in Germany (B). In France hippophagy, although it is still within the reach of people of small means, has made surprising progress. In several places ordinary butchers have been seriously alarmed by the competition of the new trade. At Toulouse, for instance, where, I think, more horses are consumed in proportion to the population than in any other town in France, the butchers' guild has formed itself into a sort of union against the sale of horseflesh. To judge from M. Saint-Agué, as the mouthpiece of the anti-hippophagists of Languedoc, hippophagy, generally speaking, is "a scourge which threatens to ruin and completely destroy commerce, industry, and agriculture." As a remedy for this terrible calamity, he proposes to withdraw horseflesh from general consumption, or to impose upon it a tax like that imposed upon the products of an ordinary slaughter-house.

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[3] See the *Nineteenth Century*, April, 1890, p. 592.

[4] See the list of authorities at the end of the article.

The statement of the grievance of the Toulouse guild is preceded by rather elaborate statistics relating to the consumption of horseflesh in France. As this document, which was drawn up from information supplied by several municipalities, has every right to be considered accurate, it would be desirable, I think, to insert an abstract of it in the *Agricultural Report of Troyes*. I shall add some further information and figures, which will enable a comparison to be made of the consumption of horseflesh in several places (see Tables A and B).

Number of Solipedes (*Horses, Asses, and Mules*) *offered for consumption as Human Food, in different Towns, &c., in France;* A, *during* 1887 ; B, *during the time named.*

Reference Number.		Towns, &c., referred to in Tables A and B, or in one of them.	TABLE A.—1887.			TABLE B.—Various Dates.		
			Number of Solipedes Consumed.	Number of Horses per Cent.	Number of Solipedes per 1,000 Inhabitants.	Total Number of Solipedes Consumed.	Total Number of Horses Consumed.	Dates during which the Solipedes were offered for Consumption.
1		Department of the Seine, Paris and Suburbs	16,446	98	6	275,600	266,312	From July 9, 1866, to Jan. 1, 1889
2		Toulouse	3,805	75	27	26,887	19,372	In 10 years, 1878-87
3	*a*	Lyon	3,291	—	9	5,682	—	,, 4 ,, '73-76
	b					21,345	—	,, 10 ,, '78-87
4	*a*	Marseille	2,188	37	6	7,844	3,804	,, 7 ,, '72-78
	b					11,541	4,674	,, 6 ,, '82-87
5		Tours	1,329	70	26	4,550	3,102	,, 6 ,, '82-87
6	*a*	Reims	1,027	95	11	249	—	From Oct. 12, 1868, to Jan. 1, 1869
	b					1,568	1,215	In 4 years, 1874-77
	c					7,028	6,409	,, 10 ,, '78-87
7		Troyes	917	95	20	12,115	11,318	,, 18 ,, '72-89
8	*a*	Lille	900	—	5	2,203	—	,, 2 ,, '76-77
	b					10,200	—	,, 10 ,, '78-87
9		Angers	818	—	12	2,080	—	,, 8 ,, '80-87
10		Roubaix	765	93	8	2,898	2,645	,, 5 ,, '83-87
11		Béziers	683	34	16	3,289	1,329	,, 6 ,, '82-87
12		Bordeaux	509	88	2	3,501	3,049	,, 9 ,, '79-87
13		Saint-Etienne	490	95	4	5,421	5,153	,, 10 ,, '78-87

Number of Solipedes (Horses, Asses, and Mules) offered for consumption as Human Food—Contd.

Reference Number.	Towns, &c., referred to in Tables A and B, or in one of them.	TABLE A.—1887.			TABLE B.—Various Dates.		
		Number of Solipedes Consumed.	Number of Horses per Cent.	Number of Solipedes per 1,000 Inhabitants.	Total Number of Solipedes Consumed.	Total Number of Horses Consumed.	Dates during which the Solipedes were offered for Consumption.
14	Sedan	478	93	24	2,841	2,653	In 6 years, 1882-87
15	Rouen	456	—	4	2,719	—	,, 6 ,, '82-87
16	Brest	400	—	6	—	—	— —
17	Besançon	391	97	7	1,915	1,862	,, 10 ,, 1878-87
18	Amiens	382	94	5	3,860	3,611	,, 10 ,, '78-87
19 a	Le Hâvre	377	—	4	103	—	,, 1883.
b					1,458	—	,, 4 years, 1884-87
20 a	Le Mans	333	85	6	1,031	832	,, 5 ,, '83-87
b					997	—	,, 2 ,, '88-89
21	Lisieux	313	87	9	362	315	,, 2 ,, '86-87
22 a	Montauban	300	80	11	679	548	,, 6 ,, '82-87
b					573	523	,, 1889.
23	Nantes	271	—	2	1,329	1,321	,, 6 years, 1882-87
24	Bourges	268	84	7	871	754	,, 3 ,, '85-87
25	Grenoble	259	86	5	754	655	,, 3 ,, '85-87
26	Calais	249	—	18	1,342	1,338	,, 10 ,, '78-87
27	Melun	198	92	16	1,291	1,104	,, 10 ,, '78-87
28	Rennes	206	—	3	872	—	,, 6 ,, '82-87
29 a	Dijon	184	93	3	94	—	,, 2 ,, '78-79
b					614	573	,, 5 ,, '83-87
30	Châteauroux	165	89	8	1,299	1,186	,, 10 ,, '78-87
31	Arras	158	93	6	1,043	974	,, 10 ,, '78-87
32	Valenciennes	139	—	5	765	764	,, 10 ,, '78-87
33	Angoulême	103	84	3	—	—	— —
34	Versailies	97	—	2	923	—	,, 10 ,, 1878-87
35	Belfort	92	—	5	—	—	— —
36	Saint-Brieuc	52	—	3	—	—	Unsuccessful attempt in 1887
37	Castres	44	—	2	132	71	In 2 years, 1886-87
38	Châtillon-sur-Seine	35	—	7	294	—	,, 15 ,, '74-88
39	Romilly-sur-Seine	30	—	4	—	—	— —
40	Issoudun	27	—	2	305	279	,, 10 ,, '78-87
41	Epinal	23	—	1	125	—	,, 4 ,, '84-87
42 43 44 45 46	At Nice (42) the consumption of horseflesh has been insignificant. At Avignon (43), at Toulon (44), and at Cherbourg (45), attempts to promote hippophagy, of which there have been several, have not been successful. Nor have they been successful at Pau (46), where only 21 solipedes were slaughtered.	—	—	—	—	—	1887

Number of Solipedes (Horses, Asses, and Mules) offered for Consumption as Human Food—Contd.

Reference Number.	Towns, &c., referred to in Tables A and B, or in one of them.	Table A.—1887.			Table B.—Various Dates.		
		Number of Solipedes Consumed.	Number of Horses per Cent.	Number of Solipedes per 1,000 Inhabitants.	Total Number of Solipedes Consumed.	Total Number of Horses Consumed.	Dates during which the Solipedes were offered for Consumption.
47	Chartres	—	—	—	2,283	1,931	In 10 years, 1878-87
48	Cette	—	—	—	500	289	„ 10 „ '78-87
49	Châteaudun	—	—	—	200	152	„ 10 „ '78-87
50	Orléans	—	—	—	505	433	In 1 year, from Oct. 1, 1888, to Oct. 1, 1889
51	Nancy	—	—	—	2,097	—	In 6 years, 1873-78
52	Vendeuvre-sur-Barse	—	—	—	30	—	From Dec. 2, 1888, to Feb. 15, 1890
53	Sens	—	—	—	22	15	In 2 months, Feb. and March, 1890
54	Laval	—	—	—	111	—	In 1886 (unsuccessful)
55	Vienne (Isère)	—	—	—	6	5	From 1886 to 1888 (unsuccessful)
56	Sainte-Savine (Aube)	—	—	—	9	9	In January, 1891
57	Beaucaire	—	—	—	—	—	500 horses were used at a sausage manufactory in 1873

In this way, the Aube farmers will learn what to believe about the scourge which is said to threaten them. They will see that, in many places, horse-butchers take the place of some of the ordinary butchers. They may then think that perhaps the latter have a grievance, but that the agriculturist does not suffer any more than the consumer. In fact, a horse that would bring its master 15 frs. to 20 frs. (12*s.* to 16*s.*) after it had been killed and skinned, would, when used for food, bring him an additional sum of 50 frs. to 100 frs. (2*l.* to 4*l.*), and sometimes more.

This extra value should not be despised by the farmer, who could not gain a brass farthing more for his oxen, cows, calves, and sheep, were he not to send his horses to the slaughter-house when they are no longer fit for work. Hippophagy is really not the cause of the depreciation in price of French cattle, but rather it is the importation of oxen from North America, brought alive to the Villette market, and frozen mutton brought by transatlantic steamers or German railways.

Why do not ordinary butchers lament over the damage done to our agriculture by this international trade? Because they have nothing to lose and much to gain by it. And so, I cannot tell farmers too often, sell your horses for slaughter when they are past work, but sell them while they are still in good condition, or else they will be refused for public consumption.

At the end of this article is a tabulated list of my printed authorities. The manuscript or unpublished authorities are official documents from Troyes (7), Châtillon (38), Sens (53), and Sainte-

Savine (56). Information also has been kindly supplied to me by several colleagues, who are veterinary inspectors of slaughter-houses: M. Côme, of Mans (20*b*), M. Bayron, of Montauban (22*b*), M. Pellerin, of Romilly (39), M. François, of Orléans (50) (K), M. Revouy, of Vienne (Isère) (55), M. Martin, of Vendeuvre (52), M. Bojoly, of Epinal (J), M. Haas, of Metz (V), and M. Archibald Robinson, of Greenock, Scotland (S).

The first horse-butcher's shop in Paris was opened on the 9th July, 1866. The number of solipedes killed in that year, between that date and the 31st December, was only 902: it rose to 2,758 in 1869, to 65,000 during the exceptional period of the Siege and the Commune, to 5,732 in 1872, and to 10,619 in 1877. The number of horse-butchers' shops was forty-eight on the 1st January, 1874, and one hundred and thirty-two on the 1st January, 1889. At the present moment the price of horseflesh is nearly half the price of the corresponding cuts of beef. For instance, the price of a fillet of beef (*filet de bœuf*) is 2 frs. 50 c. (2*s.*) for 500 grammes (about 1 lb.),[5] and that of a fillet of horse (*filet de cheval*) is 1 fr. 25 c., or, in other words, half the price for the same weight. The inferior cuts, which cost from 40 c. to 50 c. (4*d.* to 5*d.*) in the case of beef, cost from 20 c. to 30 c. (2*d.* to 3*d.*) in the case of horseflesh (D).

The number of solipedes seized after slaughter as unfit for human food was 3,583 out of 203,537, from 1868 to 1884, that is to say in eleven years (E), 304 out of 18,435 in 1886 (F), and 245 out of 16,446 in 1887) (G).

The official statistics from Lyons for 1873-76 are below the mark, because for a long time two butchers there killed fraudulently the greater number of the solipedes which they sold for food. At the end of December, 1876, there were five horse-butchers' shops in Lyons (H), while there were only three there in 1868.[6]

In 1880, there were three horse-butchers' shops in Bordeaux, which supplied altogether about 4,500 kilogrammes (between 4 and 5 tons) of meat per month (I).

At Troyes, hippophagy first made its appearance more than twenty years ago. On the 25th January, 1869, the establishment there of two horse-butchers' shops was celebrated by a hippophagical banquet, which took place in the Circus Hall. M. Decroix presided, and he was supported by Messieurs Dosseur et Paynot, and more than a hundred persons sat down to table.[7]

Hippophagy is in a fair way towards extension at Troyes. There were consumed there 912 horses and 49 asses and mules in 1888, and 996 horses and 68 asses and mules in 1889, while in 1890 the consumption rose to 1,231 horses and 71 asses and mules.

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[5] Half kilogramme = 1·1 lb.

[6] There are also horse-butchers' shops in many provincial towns. There are three at Nancy, three at Lyons, two at Strasbourg, and there are shops at Rouen, Lille, Metz, Mulhouse, Saint-Quentin, Valenciennes, Amiens, Arras, Saint-Omer, Cambrai, Péronne, Bayeux, Le Havre, Guigne, and Châtillon-sur-Seine. See *La Viande de Cheval*, by L. A. Bourguin. Paris, 1868, p. 15.

[7] *Revue Agricole Régionale de l'Aube*, t. 7. Troyes, 1868-69, pp. 283 *et seq.; Journal de l'Aube*, No. 16, 27th and 28th January, 1869.

The annual rate of consumption per 1,000 inhabitants has thus risen year by year from twenty-one in 1888 and twenty-three in 1889, to twenty-eight in 1890. The horse-butchers' shops there were fifteen in number in August, 1890, of which thirteen were shops in the town, and two were in the central market. These had increased to seventeen on the 1st January, 1891, of which fourteen were in different parts of the town, and three in the market.

Horseflesh is sold *épluchée*, that is to say without bones, fat and skin, the tendons and tissues attached (*aponévroses et tissu conjonctif*), at the following price per half kilogramme (about 1 lb.):—Fillet, till lately, 90 c. (9*d.*), now 1 fr. (10*d.*), and even 1 fr. 10 c. (11*d.*); beefsteak and roastmeat cut from the ribs (*trains de côtes*), sirloin, rump, good portions of the quarter (*cuisse*), and other such parts, 50 c. (5*d.*), and even 60 c. (6*d.*); the more or less inferior portions 30 c. to 40 c. (3*d.* to 4*d.*); fat which has not been liquefied, up to 50 c. (5*d.*); cat's meat (parings and cleanings), 20 c. (2*d.*); sausage, 80 c. (8*d.*), and 1 fr. (10*d.*), according as it is fresh or dry; liver and heart, 30 c. (3*d.*) per half kilogramme (about 1 lb.); brains, 50 c. to 60 c. (5*d.* to 6*d.*) apiece. As a rule, an ass is sold at a slightly higher price than a horse, and more frequently without being cut up (*épluchage*). From 1st October, 1884, to 31st December, 1890, the carcasses of 351 horses, 6 asses, and 4 mules were seized, after slaughter, in the slaughter-houses, as unfit for human food. Besides this total of 361 solipedes, there were also a great number of which parts were seized for different reasons, among the 5,879 horses and 320 asses and mules offered for public consumption during the same period. The total amount of bad meat thus seized was, in round numbers, about 90,000 kilogrammes (about 100 tons).

The reasons for all the seizures were as follows:—

Consumption (*étisie*): 244 horses, 2 asses, 4 mules.

Cachexy (*cachexie*): 62 horses, 3 asses.

Chronic glanders (*morve chronique*): 4 horses.

Suspected glanders (*suspicion de morve*): 1 horse.

Melanosis (*mélanose généralisée*): 26 horses.

Carcinoma (*carcinose généralisée*): 1 horse.

Tumour (*sarcomatose généralisée*): 1 horse.

Lymphatic ailment (*lymphadénie généralisée*): 1 horse.

Complete degeneration of the fatty tissues and muscles: 2 horses.

A state of general fever and miserable condition brought on by overwork, with or without traumatism, paraplegia, &c.: 8 horses.

Natural or accidental death: 1 horse, 1 ass.

At Epinal the greater number of horses killed at the communal *abattoir* are used at an establishment of pisciculture.

At Orleans, all horseflesh is sold without bones and without tendons (*aponévroses*) at 20 c. to 50 c. (2*d.* to 5*d.*) per half kilogramme (about 1 lb.) (J). The price of a *filet* is from 75 c. (7½*d.*) for the same weight. There are only two horse-butchers' shops there, and they are in the market (K).

Formerly those people at Sainte-Savine who wanted to buy horseflesh could get it only at Troyes. Certainly they had not much difficulty, on account of the contiguity of the two places. Now, however, there are two shops there which have sprung up since the beginning of 1890.

TABLE C.—*Number of Solipedes offered for Consumption as Human Food in several Towns in Europe during the Periods named.*

Reference Number.	Country.	Town.		Number of Solipedes.
I	Belgium	Brussels	*a*	About 900 horses per year towards 1883
			b	812 horses in 1886
II		Liège	*a*	4,687 horses in 11 years, 1869-79
			b	724 horses in 1883
III		Charleroi (town and suburbs)		About 50 horses per week in 1889
IV	Austria	Vienna	*a*	1,180 horses in 1854
			b	4,725 „ from 1863 to 1866
			c	3,639 „ horses in 1875 (10 horse-butchers' shops)
V	Germany	Metz	*a*	650 to 700 horses in 1887
			b	582 horses and mules, and 2 asses, in 1889
VI		Altona		550 „ in 1863
VII		Hambourg		85 „ „
VIII		Hanover		About 1,000 horses per year about 1884
IX		Berlin	*a*	1,302 horses in 1863
			b	25,873 horses in 8 years, 1865-72
			c	About 6,000 horses per year about 1884
X		Munich	*a*	3,905 horses in 12 years, 1859-70
			b	About 100 horses per month in 1885
XI		Nuremberg	*a*	510 horses in 1864 and 1865
			b	336 „ 1875
XII		Augsburg		55 „ '76
XIII		Bernbourg-sur-Saale		375 „ '85
XIV		Lübeck		368 horses from Oct. 1, 1884, to Sept. 30, 1885
XV	Holland	Amsterdam	*a*	1,401 horses and 3 asses slaughtered in the town in 1888 411 horses brought into the town slaughtered in 1888
			b	1,611 horses slaughtered in the town in 1889 496 horses brought into the town slaughtered in 1889
XVI		Utrecht		At least 1 or 2 horses per week in 1890

According to M. Thomassen, Professor at the Veterinary School at Utrecht, from whom I have just received information about Amsterdam and Utrecht (XV)—(XVI), hippophagy is in great favour in Rotterdam. Horseflesh is used for human food, but I do not know to what extent, in Denmark, Sweden, and Switzerland (L), and also in several parts of Italy, as, for instance, in Lombardy, Piedmont, Venice, and Sicily (M). It flourishes at

Milan, although people turn up their noses at it in Turin (N). In the latter town, only 55 horses were killed at the *abattoir* in 1888, and all the meat was used as food for the animals in the zoological gardens (O). M. Manuel Prieto y Prieto is sorry that hippophagy has not been adopted in Spain, where it would benefit numbers of poor workpeople for whom ordinary meat is a luxury on account of its high price (P). M. Juan Morcillo Olalla contends that the price of horses in Spain is so high, that cheap food cannot be obtained from them for the poorer classes (Q).

Horseflesh is not considered fit for human food in Bucharest (R), Scotland (S), or England (T). On several occasions, especially in 1868, 1875, and 1878, unsuccessful attempts were made to introduce hippophagy into London (U). At the same time, much horseflesh is sold there—for cats and dogs (Y).

The statistics published year by year by the Agricultural Department, give the number of horses, asses, and mules killed for human food in Paris and its suburbs. They ought to include also a return of the solipedes used for food in the provinces. Probably such a return would be granted if it were asked for. The suggestion might be adopted by the Horseflesh Society, which has done so much already towards the development of hippophagy in France. The day of banquets is past. Statistics must now play their part in order to convince those who decry horseflesh, that at this moment it is a food which is much sought after. Nothing is more eloquent than figures: this is proved by the use and abuse of them for even every kind of advertisement.

I should be much obliged if some reader of the *Agricultural Gazette of the Aube* would send me any statistics not included in this article, and I should also be glad to receive copies of rules and regulations in force in France and in other countries relating to the inspection of butchers' meat, and the management of slaughter-houses.

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V.—"*A Century of Land Values:*" *England and Wales.*

The following letter appeared in the *Times* of the 20th April, 1889, and has been held over for some time in consequence of the pressure of other matter. As a permanent record, however, it remains of interest:—

"Sir,—In these times, when the rental and marketable value of land are in such an unsatisfactory and uncertain state that the savings of the community run riot on the Stock Exchange, it is interesting to those who are connected with the land to bring to light all facts bearing on the question.

"One of the first duties of the promised new Ministry of Agriculture should be the registration of the prices of farm produce and of the price and rental value of all lands that change hands.

"In France it is always possible with but little trouble to ascertain from official sources the ruling value of agricultural land throughout the Republic. Thus 'land not under buildings' in that country in 1851 was returned as worth 20*l.* 12*s.* per acre; in 1879, 29*l.* 10*s.*; in 1884, 28*l.* per acre, and so on.

"By land 'not under buildings' is meant agricultural land as distinguished from that of towns, villages, mansions, parks, &c.

"We have prepared from our books for another purpose the following summary, which, as it has now served its turn, would in the ordinary course be buried away with its set of papers, but if you think there are any details interesting to the public we should be pleased for it to be put to that purpose.

"The total acreage of England and Wales is somewhere about 37 millions of acres, and the quantity dealt with in the Domesday Book of 1875 is over 34 millions, leaving 2¾ millions of unascertainable description, such as roads, wastes, rivers, churchyards, &c. This, however, is exclusive of the land occupied by the metropolis and waste lands.

"Of the above 37 millions, the Church lands and those under mortmain amount to about 2½ millions.

"It may also be assumed that all estates of over 6,000 acres in any one county are entailed; these amount to about eight millions of acres, and being entailed do not often come into the market.

"The holdings under one acre amount to about 142,000 acres.

"Then there are what may be called the fancy properties—viz., the grounds, park, and curtilage of mansions and residences of a superior sort, standing in from 3 to 20, or up to 100, acres of land, but with no farm lands occupied by tenants appurtenant thereto. We have no certain *data*, but we think these may safely be put at half a million acres.

"Neither are there convenient means of ascertaining the acreage of farm land in commercial holdings of 1 to 30 acres—viz., the accommodation fields near towns and villages, and market gardens, orchards, and small farms—but these may be safely put at 4½ million acres.

"There remain 18 millions of acres of what may be called marketable land:—

	Acres.
Church and mortmain	2,500,000
Entailed estates	8,000,000
Holdings under 1 acre	141,271
Fancy properties	500,000
Small holdings up to 30 acres	4,500,000
Marketable agricultural estates	18,358,739
	34,000,000

The last is held in estates of from 6,000 acres in extent down to 30 acres. It is purely agricultural and, beyond the residences of the landlords, comprises the arable, pasture, and woodland, free of or easily freed from settlement, and which once in a generation, or at the most in every two generations, comes into the market and changes hands.

"The following summary shows the average prices and rentals of a representative portion of this last class of land for a hundred years:—

Year.	Number of Acres Sold.	Rental thereof.	Rent per Acre.	Price Sold for.	Price per Acre.	Number of Years' Purchase.	Average Price of Wheat per Quarter.	
		£	s.	£	£		s.	d.
1781....	358	250	14	11,575	33	45	46	–
'82....	709	460	13	26,582	37	57	49	3
'83....	1,463	1,352	18	50,069	34	37	54	3
'84....	4,694	5,257	22	146,060	31	28	50	4
'85....	4,722	5,106	22	140,000	30	28	43	1
'86....	7,670	7,563	20	314,071	41	41	40	–
'87....	1,274	1,097	18	60,582	47	55	42	5
'88....	1,260	1,437	23	34,682	28	24	46	4
'89....	1,384	1,280	18	29,621	22	24	52	9
1790....	5,483	6,149	22	230,187	42	37	54	9
'91....	7,450	8,217	22	260,409	35	34	48	7
'92....	1,428	1,384	20	36,268	25	26	43	–
'93....	1,284	1,157	20	27,424	21	24	49	3
'94....	1,180	1,304	22	31,040	26	24	—	
'95....	6,492	5,261	17	212,589	33	26	—	
'96....	2,890	3,561	25	117,820	40	33	—	
'97....	4,765	4,982	21	130,270	27	26	53	9
'98....	4,687	5,041	21	131,420	28	26	51	10
'99....	5,281	6,357	24	217,210	41	33	69	–
1800....	7,187	8,023	22	230,472	32	29	113	10
'01....	5,945	5,070	17	202,859	34	40	119	6
'02....	6,749	7,000	20	272,141	40	39	69	10
'03....	7,540	8,120	21	256,490	34	31	58	10
'04....	4,705	5,047	21	124,400	26	25	62	3
'05....	3,270	3,900	24	79,140	24	20	89	9
'06....	2,787	3,462	25	115,280	41	33	79	1
'07....	5,438	6,410	20	210,120	39	33	75	4
'08....	2,647	3,600	27	194,100	73	54	81	4
'09....	4,070	4,640	23	127,820	31	28	97	4

Year.	Number of Acres Sold.	Rental thereof.	Rent per Acre.	Price Sold for.	Price per Acre.	Number of Years' Purchase.	Average Price of Wheat per Quarter.	
		£	s.	£	£		s.	d.
1810....	7,078	8,087	23	206,570	29	26	106	5
'11....	7,013	9.280	26	263,120	38	28	95	3
'12....	5,194	7,069	27	211,416	41	30	126	6
'13....	8,930	10,243	23	381,820	43	37	109	9
'14....	2,987	3,731	25	119,495	40	32	74	4
'15....	7,960	7,663	20	315,604	41	41	65	7
'16....	8,742	11,480	27	287,642	33	25	78	6
'17....	9,774	11,217	23	276,724	28	25	96	11
'18....	11,643	11,540	20	312,478	27	27	86	3
'19....	10,585	10,656	20	309,140	29	29	74	6
1820....	12,270	14,760	24	642,571	52	42	67	10
'21....	13,485	15,170	22	427,853	32	28	56	1
'22....	14,827	14,641	19	393,856	26	27	44	7
'23....	4,620	5,006	22	139,600	30	28	53	4
'24....	16,558	16,162	20	426,415	26	26	63	11
'25....	10,925	14,546	26	397,450	36	26	68	6
'26....	12,549	19.150	30	639,950	50	33	58	6
'27....	71,462	22,183	6	587,300	8	26	58	6
'28....	13,548	14,268	21	402,080	17	28	60	5
'29....	6,270	6,430	20	180,431	29	28	66	3
1830....	4,410	8,136	37	215,770	48	26	64	3
'31....	7,817	11,562	29	266,740	34	23	66	4
'32....	8,102	9,983	24	200,075	25	20	58	8
'33....	5,199	9,282	36	209.250	40	23	52	11
'34....	3,767	4,721	25	112,140	27	24	46	2
'35....	4,480	6,190	27	133,948	30	22	39	4
'36....	24,685	12,600	10	273,120	11	22	48	6
'37....	2,122	2,645	20	69,060	33	26	55	10
'38....	9,747	11,271	23	280,270	28	25	64	7
'39....	7,949	11,479	29	280,970	35	24	70	8
1840....	4,830	6,041	25	169,505	35	28	66	4
'41....	3,476	5,108	29	147,729	42	29	64	4
'42....	2,581	2,736	27	73,000	28	27	57	3
'43....	4,944	5.633	23	148,485	30	26	50	1
'44....	11,984	15,950	26	457,530	38	28	51	3
'45....	12,000	14,200	24	400,500	34	28	50	10
'46....	6,435	10,930	34	316,200	50	29	54	8
'47....	6,349	9,088	29	206,240	33	22	69	9
'48....	12,000	12,708	20	396,450	33	31	50	6
'49....	9,315	11,314	24	258,600	28	23	44	2
1850....	3,556	3,806	22	101,160	29	27	40	2
'51....	6,172	7,204	23	232,300	38	32	38	6
'52....	4,066	6,392	25	166,650	34	26	40	8
'53....	13,225	17,542	26	485,000	37	28	52	10
'54....	10,245	16,680	32	332,340	33	20	72	4
'55....	12,753	19,285	30	388,850	30	20	74	8
'56....	13,594	18,424	14	484,820	36	26	69	2
'57....	15,105	20,339	27	580,740	38	28	56	4
'58....	24,658	36,829	30	1,055,422	42	29	44	2
'59....	7,890	13,365	35	357,860	45	27	43	8

Year.	Number of Acres Sold.	Rental thereof.	Rent per Acre.	Price Sold for.	Price per Acre.	Number of Years' Purchase.	Average Price of Wheat per Quarter.	
		£	*s.*	£	£		*s.*	*d.*
1860....	8,764	13,333	30	329,930	35	24	53	2
'61....	11,768	11,098	20	337,655	28	28	55	4
'62....	17,564	17,853	20	618,340	38	35	55	4
'63....	16,291	18,958	23	609,620	37	32	44	8
'64....	15,274	24,500	32	990,150	65	40	40	4
'65....	10,946	17,320	32	431,035	40	25	41	10
'66....	12,021	16,900	28	621,840	52	37	49	10
'67....	14,333	17,526	24	474,000	33	27	64	4
'68	6,862	8,909	26	360,600	53	41	63	8
'69....	8,314	9,000	21	330,945	40	37	48	2
1870....	9,082	11,254	25	462,813	60	41	46	10
'71....	7.599	11,982	32	480,480	60	40	56	8
'72....	6,511	13.534	42	399,000	61	30	57	–
'73....	16,509	24.335	30	922,940	56	37	58	8
'74....	15,143	21,420	29	937,150	62	44	55	8
'75....	12,412	18,130	30	553,660	45	31	45	2
'76....	9,355	13,846	30	436,000	47	32	46	2
'77....	11,755	19,110	32	676,650	58	36	56	8
'78....	8,603	12.545	29	407,000	47	38	46	4
'79....	9,623	13,710	28	352,500	37	25	43	10
1880....	12,519	14,230	22	426,500	34	30	44	4
	875,936	1,026,705	—	30,901,698	—	—	—	

"All fancy property, heaths, holdings under 30 acres, building land, &c., are excluded from the above. It consists of what is called purely agricultural land.

"To analyse, comment on, or particularize the figures in the table is far beyond the scope of a single letter; but we think a fairly accurate use of the figures could be made if they were grouped into periods of five years.

"The apparent violent fluctuations in the prices (but they are not more sudden than some of the differences in the annual prices of wheat) are accounted for by the accident that more land came forward for sale in one year than another, or a particularly fine estate and one of poor quality came each into one of two consecutive years, and elevated or depressed the average rental or sale value of those years. This, however, would not happen if, when the transfer deeds came to be stamped, a Government department kept a register of the quantity, rent, and price of all land sold in the kingdom in each year. The result would be free from sudden fluctuations, and show the annual rise and fall of rents and prices.

"One word for the rents and prices of the foregoing list. The properties there shown are only those that have been sold at or within a time after the auction; the facts and figures have stood the test of publicity, no estate for private sale being included in the list.

"It may be remarked the large number of years' purchase that the rentals have in some years realised. The rent is not the full measure of the benefits of land holding, and that they have fetched these large number of years' purchase in open competition in the public market, shows that the amenities attached to land were much appreciated.

"We are, Sir, your obedient servants,
"NORTON, TRIST, and GILBERT.
"62, *Old Broad Street.*"

VI.—*Preliminary Note on the Seventh International Congress of Hygiene and the Sixth of Demography.*

THE most noteworthy Congress of the year was that of Hygiene and Demography, held in August last, and presided over by H.R.H. the Prince of Wales, to whom its social success was mainly, if not entirely, due, and to whom its scientific value was not without obligation, as will doubtless be shown when its transactions are published. Until then we shall not be in a position either to gauge its merits or to touch upon its defects, for all such great gatherings are not without a fair share of both the one and the other. Although, as stated by Professor Huxley in his last address as President of the Royal Society, scientific associations are not dependent upon numbers, or the sums realised by the subscriptions of members, for their value as instruments for the advancement of knowledge, peripatetic and international feasts of reason and interchange of social amenities exercise a not unimportant influence of their own. They attract the attention of many who would not otherwise be in a position, or take the trouble to influence and educate public opinion in such important matters as several of those which occupied the attention of the congress under consideration. To popularise, without vulgarising (for they are not identical in meaning or application), the laws which govern the truths of science in their application to life in association, which is the most marked characteristic of national existence in all modern civilised communities, is in itself by no means an unimportant end to attain. To bring together, again, men of different nationalities, and thus to cultivate and increase the feelings of mutual respect and regard which are the natural outcome of personal and social intercommunion, is daily becoming of increased interest and importance in the public and private relations of all nations, which are bound together by so many interests common to all, and separated by so few that are of real or indeed any antagonism. Doubtless different standards of civilisation may and do co-exist, whereby the prosperity of the one may add to the comfort and happiness of others. This may be done without exciting any other feeling than that of healthy competition and rivalry in the arts of peace and good will, and this is one of the functions of International Congresses.

The congress was arranged in two divisions: Hygiene and Demography, which constituted distinct and separate bodies, working in unison for reasons determined at the congress held at Geneva in 1882. This fact does not appear to have been sufficiently recognised, even if it were understood, by the organising committee; hence some degree of friction and misunderstanding, which might and ought to have been avoided.

The hygienic division was subdivided into nine sections, numbered in rotation, viz., (*a*) Preventive Medicine, (*b*) Bacteriology, (*c*) the relations of the Diseases of Animals to those of Man, (*d*) Infancy, Childhood, and School Life, (*e*) Chemistry and Physics in relation to Hygiene, (*f*) Architecture in relation to Hygiene, (*g*) Engineering in relation to Hygiene, (*h*) Naval and Military Hygiene, and (*i*) State Hygiene.

The second division, Demography, was one, and not subdivided.

The congress was formally opened on the 10th of August, before a well packed audience in St. James's Hall, by H.R.H. the Prince President, in one of those sound, sensible, practical discourses in the utterance of which he has no rival. In truth the occasion was one which needed no rhetorical artifices to recommend it to the cordial approval of the many nationalities to whom it was addressed, and by whom it was responded to with genuine warmth of feeling in several tongues, by men of mark. The arrangements for this meeting left much to be desired, for which no sufficient explanation has yet been offered.

(*a*.) The Section of Preventive Medicine was presided over by Sir Joseph Fayrer, an Indian officer of many and varied acquirements, and he was assisted by twelve vice-presidents, a strong council, and three honorary secretaries.

The chief subjects considered by it were: the prevention of the spread of epidemic diseases such as cholera from one country to another; diphtheria, with reference to its causes and prevalence, with a view to its prevention; the relation of alcoholism to public health; the hospital ambulance organisation of the metropolis; and many other matters so intimately connected with the science of medicine as to be little adapted for so mixed an audience as attended the meetings.

The separation of preventive from curative medicine, and from those sciences on which both are based, does not appear to be a judicious proceeding, or one calculated to effect the end intended.

Throughout the congress, in all its sections and divisions, the materials for digestion were out of all proportion to the time allowed for their disposal, and the discussions, with one or two apparent but not real exceptions, were either conspicuous by their absence, or characterised by their insufficiency to be of any practical value.

(*b*.) The section of Bacteriology was under the direction of one of the most distinguished of living bacteriologists, Sir Joseph Lister, assisted by three vice-presidents of acknowledged eminence, and a compact council of workers, all experts in this new branch of practical medicine, from which it certainly should not be separated in any national or international congress.

The subjects suggested for discussion were immunity, tuberculosis in man and animals (in conjunction with Section III), and micro-organisms, in their general characteristics and relation to infectious diseases, together with the action of disinfectants.

A special feature of this section was a bacteriological museum and laboratory, well organised and arranged under a competent special committee.

The mere mention of the above subjects shows how impossible it is to give any connected popular digest of them, in the absence of an authoritative official record.

(*c*.) The section devoted to the relations of the diseases of animals to those of man, was presided over by Sir Nigel Kingscote, the chief of the Royal Veterinary College, assisted by experts as vice-presidents, and a strong council, in which most branches of veterinary medicine were represented, together with three honorary secretaries, also representative men.

The programme included the propagation and prevention of rabies; animal parasites communicable to man; the infection of food; a joint consideration of tuberculosis in all its bearings by sections 2 and 3; the alleged dangers of the consumption of apparently healthy meat and milk of tuberculous animals; the infectious diseases of animals communicable to man, and *vice versâ;* anthrax, and veterinary hygiene.

How this variety of subjects, all of practical value and present interest, was dealt with, could scarcely be reproduced intelligibly in this mere outline from the materials at present at our command, and must await the publication of the official record—as indeed must the work of the congress as a whole, as already represented.

(*d*.) The fourth section, on infancy, childhood, and school life, worked under the direction of Mr. Diggle, Chairman of the London School Board, assisted by two lay, and one medical vice-president, and a strong representative council, with no less than four secretaries, all more or less known for their personal devotion to and knowledge of this—the most important period of life for all measures tending to the creation of healthy minds in healthy bodies, and the cure of the many evils inseparable from defective methods of education and training.

The programme, drawn up with an evident mastery of the questions demanding consideration, embraced the heads of—the child under normal and abnormal conditions, children of defective organisation and hereditary imperfections; the hygiene of school life, and the law in relation to the child.

This was one of the most popular and attractive sections, and evolved, as might be expected, a large amount of sentiment. It was managed with rare tact by its presiding officer. The detailed publication of its work will be looked for with much interest.

(*e*.) Chemistry and physics in relation to hygiene, was equally well represented by Sir Henry Roscoe, as president, four vice-presidents, and a small but experienced council and secretaries, and was devoted to the consideration of smoke prevention; the chemical and physical principles of dealing with sewage; the chemical and physical examination of air, water, and foods; and meteorological and miscellaneous subjects.

(*f*.) The sixth section, that of architecture in relation to hygiene, was directed by Sir Arthur W. Blomfield, with thirteen vice-presidents, and the usual staff of secretaries, and was eminently practical in its selection of subjects for consideration.

It was devoted to the laying out and extension of towns, under the heads of reservation of open spaces, streets and ways, buildings in their many theoretic and practical aspects, private dwellings, composite dwellings, such as are required for artisans, labourers, and are used as common lodging houses, trade premises and workshops, and public buildings of all kinds, from hospitals to workhouses, an array of matters well deserving of a Congress of its own, and needing it to deal effectively with this important branch of social economy.

The consideration of art in association with architecture, which has important relations in its influence on health, would also have been a deeply interesting addition to the work of this section, were its programme not already overladen as a section of a composite congress.

(*g.*) Engineering in relation to health, was the task of the seventh section, under the guidance of Sir John Coode, President of the Institute of Civil Engineers, aided by the usual staff of vice-presidents and secretaries, all connected with this great profession. The questions considered were sewerage and sewage disposal, water supply, pollution of rivers, and collection and disposal of town refuse, all matters of primary importance in the aggregation of human beings—sometimes in vast numbers—on limited areas, with variations of soil and surrounding circumstances calling for the possession and application of the highest skill in combatting successfully the evils due to the non-natural conditions in which such communities are compelled to live. In this, and indeed in the work of every section, the official record is needed to discuss them with effect.

(*h.*) The eighth section embraced very many matters connected with the health of the army and navy, both in their relations to the communities of which they are selected members, and as classes apart, being under strict control and regulations, and in many circumstances not free agents in the disposal of their time and occupations, or in incurring risks incidental to their duties and movements. It was presided over by a distinguished soldier, Lord Wantage, aided by an exceptionally strong staff of vice-presidents, councillors, and secretaries. It would occupy unprofitably too much space in this necessarily hasty sketch even to enumerate the exact heads of inquiry contained in their programme, which will doubtless be properly dealt with in the official record of their proceedings. The time allowed can, however, scarcely have been sufficient to permit of the exhaustive treatment of a tithe of the matters under review.

(*i.*) The last of the hygienic sections was by no means the least difficult and important to deal with, viz., the subject of State Hygiene. It was directed by Lord Basing, a former President of the Local Government Board, supported by a great array of vice-presidents, mostly experts, and the orthodox number of secretaries. Its programme was so ambitious as to render it a matter of considerable interest to learn how some of the very burning questions contained in it were dealt with, for unusually excellent as the abstract of the proceedings of this congress, published daily, was, it fails to afford the means of forming a judgment of the value of the results obtained.

It was subdivided into six sections, ranging from the organisation of a health department of the State, the reciprocal duties of individuals and communities in respect of health, and the education, duties, and position of the agency required to carry into effect the regulations for maintaining public health, down to the disposal of the dead, and the growth of sanitary science and practice in different countries.

DIVISION II.—*Demography.*

The second division of the congress refers to what constitutes an important part of the work of this Society, and therefore has a more direct and immediate interest for us; but, in this preliminary sketch it is not necessary to do more than reproduce the list of officers presiding over it, and to publish the opening address of the president *in extenso.* The other matters connected with it, and the position assigned to it, will be specially dealt with hereafter.

It was presided over by Mr. Francis Galton, F.R.S., whose scientific reputation is of the highest, supported by the following vice-presidents, with a consultative council, and the undermentioned secretaries:—

President.

Francis Galton, F.R.S.

Vice-Presidents.

The Right Hon. Leonard Courtney, M.P.
Robert Giffen, C.B., LL.D.
The Right Hon. Sir John Lubbock, Bart., M.P., F.R.S.
F. J. Mouat, LL.D., President, Royal Statistical Society.
B. Newbatt, President, Institute of Actuaries.
William Ogle, M.D., Superintendent of Statistics, General Registry Office.
The Right Hon. Sir Lyon Playfair, K.C.B., M.P., F.R.S.
Sir Rawson W. Rawson, K.C.M.G., President, International Statistical Institute.
E. B. Tylor, LL.D., F.R.S., President, Anthropological Institute.

Council.

Thomas Burt, M.P.
Rowland Hamilton, F.S.S.
F. Hendriks, F.I.A., F.S.S.
Sir John Kirk, K.C.B., F.R.S.
G. B. Longstaff, F.R.C.P.
E. G. Ravenstein, F.R.G.S
David L. Schloss.

Secretaries.

Stephen W. Fox.
Arthur Newsholme, M.D.
Adolph Smith.

The following is Mr. Galton's presidential address:—

In the address, which it is my honourable duty to deliver at the opening of this Congress, it would be presumptuous to obtrude opinions on any one of the larger parts of the subjects that will engage its attention. I am addressing experts who have practically dealt with the numbers and occupations, with the marriages, births, and deaths of millions of their countrymen; who have investigated on the largest scale the effects of past legislation, and collected new data in which accurate information was from time to time of pressing national importance. I have not had the experience necessary to justify my addressing you on these matters in their more familiar aspects. Instead of doing so, I will ask your attention for a few minutes to certain topics of demographic inquiry which enter into the great problem of the future betterment of the human race.

They are confessedly, at the present time, hardly advanced beyond the stage of academic interest, but thought and action move swiftly now-a-days, and it is by no means impossible that a generation which has witnessed the exclusion of the Chinese race from the customary privileges of settlers in two continents, and the deportation of a Hebrew population in a third, may live to see other acts of an analogous kind performed under sudden socialistic pressure. The questions about to be considered may unexpectedly acquire importance as falling within the sphere of practical politics, and if so, many demographic data that require forethought and time to collect, and a dispassionate and leisurely judgment to discuss, will be hurriedly and sorely needed.

The topics to which I will allude are the relative fertility of different classes and races, and their tendency to supplant one another under various circumstances.

The whole question of fertility under the various conditions of civilised life requires more detailed research than it has yet received. We require further investigations into the truth of the hypothesis of Malthus, that there is really no limit to over-population beside that which is afforded by misery or prudential restraint. Is it true that misery, in any justifiable sense of that word, provides the only check which acts automatically, or are other causes in existence, active, though as yet obscure, that assist in restraining the overgrowth of population? It is certain that the productiveness of different marriages differs greatly in consequence of unexplained conditions. The variation in fertility of different kinds of animals that have been captured when wild and kept in menageries is, as Darwin long since pointed out, most notable and apparently capricious. Most of those which thrive in confinement, and enjoy apparently excellent health, are nevertheless absolutely infertile; others, often of closely allied species, may have their productivity increased. One of the many evidences of our great ignorance of the laws that govern fertility, is seen in the behaviour of bees, who have somehow discovered that by merely modifying the diet and the size of the nursery of any female grub, they can at will cause it to develop, either into a naturally sterile worker, or into the potential mother of a huge hive.

Demographers have, undoubtedly, collected and collated a vast amount of information bearing on the fertility of different nations, but they have mainly attacked the problem in the gross and not in detail, so that we possess little more than mean values that are applicable to general populations, and are very valuable in their way, but we remain ignorant of much else that a moderate amount of judiciously directed research might, perhaps, be able to tell.

As an example of what could be sought with advantage, let us suppose that we take a number sufficient for statistical purposes, of persons occupying different strata or classes, those who are the least efficient in physical, intellectual, and moral grounds, forming our lowest class, and those who are the most efficient forming our highest class. The question to be solved relates to the hereditary permanence of the several classes. What proportion of each class is descended from parents who belong to the same class, and what proportion is descended from parents who belong to each of the other classes? Do those persons who have honourably succeeded in life, and who are presumably, on the whole, the most valuable portion of our human stock, contribute on the aggregate their fair share of posterity to the next generation? If not, do they contribute more or less than their fair share, and in what degree? In other words, is the evolution of man in each particular country favourably or injuriously affected by its special form of civilisation?

Enough is already known to satisfy us that the productiveness of both the extreme classes, the best and the worst, falls short of the average of the nation as a whole. Therefore the most prolific class necessarily lies between the two extremes, but at what intermediate point does it lie? Taken altogether, on any reasonable principle, are the natural gifts of the most productive class, bodily, intellectual, and moral, above or below the line of national mediocrity? If above that line, then the existing conditions are favourable to the improvement of the race. If they are below that line, they must work towards its degradation.

These very brief remarks can only serve to shadow out the problem; it would require much more time than is at my disposal, as well as much discussion, before it could be phrased in a way free from ambiguity, so its solution would clearly instruct us whether the conditions of life at any period in any given race were tending to raise or to depress its natural qualities.

The amount of the effect produced in particular instances by natural selection acting on the human race during a few successive generations, well deserves strict demographic investigation. In our present ignorance we may easily fall into great error by overestimating its influence, for natural selection may act simultaneously under at least three different conditions that are as yet imperfectly distinguished. So far as the selected individuals are ordinary varieties of the race, in the sense that their qualities are merely blends of those of their ancestors, the average racial qualities will tend to reassert themselves in their descendants, and after the period of selection has come to an end the race will soon regress to its ancient character, like the once familiar pedigree wheat. Or again, the race may be of an essentially stable type, showing that a strong tendency exists in the descendants of those who had widely departed from the central and securest form to regress towards it.

In this case the result will be the same as before, in that a long continuance of natural selection will not permanently injure the race. Or, on the other hand, the national type may be unstable, tending to split into sub-types, or else to form what the breeders call "sports," each of which is the possible origin of a variety that may become firmly established in the future. Here the preservation of each valuable and fertile sub-type, through the effects of selection, is a new and firm step towards the improvement of the race as a whole. Think of the gain that has accrued to the musical world through the breed of one gifted individual, the famous Sebastian Bach.

Whatever other countries may or may not have lost, ours has certainly gained on more than one occasion by the infusion of the breed of selected sub-races, especially of that of the Protestant refugees from religious persecution on the continent.

It seems reasonable to look upon the Huguenots as men who, on the whole, had inborn qualities of a distinctive kind from the majority of their countrymen, and who may, therefore, be spoken of as a sub-type—that is to say, capable, when isolated, of continuing their race without its showing any strong tendency to revert to the form of the earlier type from which it was a well defined departure. It proved, also, that the cross breed between them and our ancestors was a singularly successful mixture. Consequently England has been largely indebted to the natural refinement and to the solid worth of the Huguenot breed, as well as to the culture and technical knowledge that the Huguenots brought with them.

The frequency in history with which one race has supplanted another over wide geographical areas is one of the most striking in the evolution of mankind. The denizens of the world at the present day form a very different human stock to that which inhabited it a dozen generations ago, and to all appearance a no less difference will be found in our successors a dozen of generations hence. Partly it may be that new human varieties have come into permanent or only into temporary existence, like that most remarkable mixed race of the Normans many centuries ago, in whom, to use well known words of Mr. Freeman, the indomitable vigour of the Scandinavians, joined to the buoyant vivacity of the Gaul, produced the conquering and ruling race of Europe. But principally the change of which I spoke is due to great alterations in the proportions of those who belong to the old and well established types. The negro now born in the United States has much the same natural faculties as his distant cousin who is born in Africa. The effect of his transplantation being ineffective in changing his nature, but very effective in increasing his numbers, in enlarging the range of his distribution, and in destroying native American races. There are now some 8,000,000 of negroes in lands where not one of them existed twelve generations ago, and probably not one representative of the race which he displaced remains there;

on the other hand, there has been no corresponding diminution of numbers in the parent home of the negro. Precisely the same may be said of the European races who have during the same period swarmed over the temperate regions of the globe, forming the nuclei of many future nations.

It is impossible, even in the vaguest way, in the short time at my disposal, to give a just idea of the magnitude and variety of changes produced in the human stock by the political events of the last few generations, and it would be difficult to do so in any case in a manner that would not be likely to wound the patriotic susceptibilities of many or all of us. The natural temperaments and moral ideals of different races are various, and praise or blame cannot be applied at the discretion of one person without exciting remonstrance from others who take different views with perhaps equal justice. The birds and beasts assembled in conclave may try to pass a unanimous resolution with a large majority in favour of the natural duty of the mother to nurture and protect her offspring, but the cuckoo would musically protest. The Irish celt may desire the extension of his race and the increase of its influence in the representative governments of England and America, but the wishes of his Anglo-Saxon or Teuton fellow subjects may lie in the opposite direction, and so on indefinitely. My object now is merely to urge inquiries into the historical fact whether legislation, which has led to the substitution on a large scale of one race for another, has not often been the outcome of conflicting views into which the question of race hardly entered at all, and which were so nearly balanced that if the question of race had been properly introduced into the discussion the result might not have been different. The possibility of such being the case cannot be doubted, and by itself affords strong reason for justly appraising the influence of race, and of hereafter including it at neither more nor less than its real value, among the considerations by which political action will be determined.

The importance to be attached to race is a question that deserves a far larger measure of exact investigation than it receives. We are exceedingly ignorant of the respective ranges of the natural and acquired faculties in different races, and there is far too great a tendency among writers to dogmatise wildly about them, some grossly magnifying, others as greatly minimising their several provinces. It seems within the power of demography to answer this question unambiguously, difficult as it is.

The recent attempts by many European nations to utilise Africa for their own purposes gives immediate and practical interest to inquiries that bear on the transplantation of races. They compel us to face the question as to what races should be politically aided to become hereafter the chief occupiers of that continent. The varieties of negroes, Bantus, Arab half-breeds, and others who now inhabit Africa are very numerous, and they differ much from one another in their natural qualities. Some of them must be more suitable than others to thrive under that form of moderate civilisation which Europeans are likely to introduce into Africa by their enforcing justice and order, exciting a desire among the natives for material advantages for what might not be called luxuries, and making steady industry almost a condition of living at all. Such races would spread and displace the others by degrees. Or it may prove that the Negroes, one and all, will fail as much completely under the new conditions as they have failed under the old ones to submit to the needs of a superior civilisation to their own, in which case their races, numerous and prolific as they are, will in course of time be supplanted and replaced by their betters.

It seems scarcely possible as yet to assure ourselves as to the impossibility of any variety of white men to work, to thrive, and to continue their race in the broad regions of the tropics. We could not do so without better knowledge than we now possess of the different capacities of individuals to withstand their malarious and climatic influences. Much more care is taken to select appropriate varieties of plants and animals for plantation in foreign settlements than to select appropriate types of men. Discrimination and foresight are shown in the one case, an indifference born of ignorance is shown in the other. One aspect of this question will be discussed in the course of our proceedings, and I await the result with keen interest, and have no wish to attempt to forestall it. What I now desire to point out is the importance of a more exact examination and careful record than is now made of the physical qualities and hereditary antecedents of candidates for employment in tropical countries. We desire to judge how far medical forecast is justified by the result, and more especially to find out the conditions in youth that are prevalent among those whose health subsequently endures the change of climatic influence satisfactorily, and conversely as regards those who fail. It is scarcely possible to properly conduct such an investigation respectively.

In conclusion, I wish to emphasise the fact that the improvement of the natural gifts of future generations of the human race is largely, though indirectly, under our control. We may not be able to originate, but we can guide. The processes of evolution are in constant and spontaneous activity, some pushing towards the bad, some towards the good. Our part is to watch for opportunities to intervene by checking the former and giving free play to the latter. I wish to distinguish clearly between our power in this fundamental respect and that which we also possess of ameliorating education and hygiene. It is earnestly to be hoped that demographers will increasingly direct their inquiries into historical facts, with the view of estimating the possible effects of reasonable political action in the future, in gradually raising the present miserably low standard of the human race to one in which the Utopias in the dreamland of philanthropists may become practical possibilities.

VII.—*Notes on Economical and Statistical Works.*

Labour and Life of the People. Vol. ii, London continued. Edited by Charles Booth. London: Williams and Norgate, 1891.

The first volume of Mr. Booth's *Labour and Life of the People* excited the admiring wonder and grateful appreciation of economic and statistical students; and the second, which now lies before us, will whet their appetite for further instalments. In the concluding section Mr. Booth furnishes an outline of the work which he still hopes to accomplish. The next volume will, he states, be devoted to "a description of the condition of the people grouped according to their trades, as was partially done for east London" in the first volume, and the figures of the recent census will be made the basis of this description. Stock will then be taken of the existing agencies for social reform, and of the remedies for poverty which are now being applied; and the effects of these remedial efforts will be compared, so far as may be possible, from district to district. When this has been accomplished, Mr. Booth will return to the original aim of his whole enterprise, and endeavour to discover or suggest some remedies of his own. But he fully recognises, with that patient pertinacity, which is perhaps the main characteristic of the work he has already achieved, how long and difficult and disappointing must inevitably be the road which will lead to the goal he seeks. At present he declares, although he is convinced that his "class B is the *crux* of the situation," and although he intends to return to the "proposal for a revision of the Poor Law," which he put forward in his first volume, yet that an "extension of the area of inquiry from east London to the whole of London," while enlarging the "wilderness of figures," "has not done much to make the path more clear." Should anyone else by chance or good fortune succeed in making clear the path through this "wilderness of figures," we are sure that Mr. Booth, who has done more than his modesty allows him to own, would still be justly regarded as the pioneer who had removed the preliminary barriers; but we believe that his success in the future has only to equal his success in the past, for the task to be achieved by himself. The same admirable qualities, which have contributed to produce the one result, may well effect the other; and, as it is, far more has been accomplished than could have been reasonably anticipated when he commenced his work. The Royal Statistical Society has ample cause to congratulate itself on having taken part in the inception of one of the most successful and important pieces of statistical work ever undertaken, or achieved, at any rate by a private individual, in this or perhaps any other country of the world.

The same features, which ensured the success of Mr. Booth's first volume, will be found in that now before us, and the inquiry is conducted in the main on identical lines Where the editor has been able to incorporate the results of the labours of others, such as those of Mr. Graham Balfour for Battersea in the third part, and of the Central London Committee for that district in the second part, the investigations of these contributors have been pursued according to a plan similar to his own; and here, as in his first volume, he has the assistance of Mr. Argyle, who furnishes an account of outlying London north of the Thames, of Miss Collet, who writes on west end tailoring, so far as women's work is concerned, and of Mr. Llewellyn Smith, who continues the valuable and interesting study of migration which he commenced in the first volume. Mr. Smith's article is supported by an appendix containing a table giving the birthplaces of London residents born in other parts of the United Kingdom, and on this table a map is based. He shows that migration to London from the country is not so much a vague movement in search of employment, as a definite pursuit of a known advantage. It is no doubt partly due to the improvement of facilities of transit, but it is also partly due to the fact that a considerable proportion of the work which must be done in the towns can be performed more efficiently by those who are bred in the country. These immigrants do not, as it is often supposed, swell the ranks of the unemployed; but they rather take the place of the town labourers, who have deteriorated in physique and perhaps also in *morale*. The "low water mark" of immigration coincides very nearly with that district of Bethnal Green which was recently condemned by the London County Council. Miss Collet and Mr. Llewellyn Smith also contribute to the chapter on Secondary Education in the fourth part, the former dealing with girls, and the latter with boys. In addition to this assistance in his work, the editor has in this volume the advantage of the co-operation of Miss Octavia Hill, who discusses in the first part, which is entitled "London, Street by Street," the influence of model dwellings on the character of the inhabitants, and reaches the conclusion that there is more chance of dealing successfully with the undisciplined and untrained in individual dwellings. Mr. Arkell furnishes statistics of these dwellings, and a Lady Resident supplies a graphic sketch of life in them. In the second part, which is devoted to Central London, a Working Tailor, a Mr. James Macdonald, gives an account of men's work in west end tailoring; Mr. Grey describes Covent Garden, which in central London corresponds to the docks in east London, as the resort of casual irregular employment; Mr. R. C. Valpy discusses the subject of common lodging houses, which, he maintains, require more efficient inspection and more thorough registration; and Miss Tillard assists the editor in his instructive chapter on homeless men, which will probably serve to correct many erroneous, if not extravagant, opinions. Miss Tabor also contributes a chapter on elementary education to the fourth section of the book, which deals with "London Children," and follows on a third part devoted to "South and Outlying London."

From the summary review we have given of the contributions to this volume which have been furnished by others than the editor himself, it will be seen that it is of the same general character as the first, and that an attempt here, as there, is made to present a faithful portrait of the exact conditions of life of the people, and to gauge with accuracy the extent and intensity of London poverty. There is no intention either to exaggerate or to minimise; the only endeavour of the editor and his assistants is to set forth the literal truth. And with this object the method pursued is frankly laid bare. Copies of specimen pages from the note-books used are supplied; and the information obtained here, as in the first volume, primarily from the School Board visitors, has been subjected to various additional tests. The general assumption is still maintained, that "as is the condition of families with school children, so on the whole will be that of the entire population, or so far as there is any difference, better rather than worse;" but the method of inquiry has been so far changed from that pursued in the first volume, as to take the street as the working basis instead of the family. Only general particulars have been given of the occupations of the parents, as the industrial side of the problem will be handled in a later volume, and it has been necessary to lighten the work. The School Board "block" has been taken as the unit of area, although unfortunately it does not correspond exactly either to the registration sub-district, or to the ecclesiastical parish. Even the streets run through from block to block, from sub-district to sub-district, from parish to parish. But from the note-books and supplementary information each street in London has been coloured on the map appended to the volume according to the poverty of the inhabitants, and the whole population has been divided by class in proportion to the number of school children. The marking of the streets, based in the first instance on the particulars in the note-books, has been revised by the editor's secretaries, who have walked over the whole ground, and also by the School Board visitors. It has then been referred to the relieving officers and the agents of the Charity Organisation Society. The police have been consulted about the worst streets, and the clergy and district-visitors about most of the poorer parts; and in the fourth part the results of independent inquiries made of the School Board teachers are given. These results tend to show a greater amount of poverty, but do not, Mr. Booth thinks, really impeach the trustworthiness of his previous figures.

Such then has been the method pursued: we may now notice briefly some of the results, which are chiefly given in the first chapter of the present volume. Mr. Booth divides the population into eight classes, of which A, B, C, and D represent those in poverty, and E, F, G, and H those in comfort. The first four amount for all London to 30·7 per cent., and the last four to 69·3 per cent. These figures indicate an increase over those calculated from the returns for the east of London alone, and for this, south London and Holborn are mainly responsible. It is true that in central London no such evident poverty is exhibited by the purchasers at the stalls in the streets as in east London; but, adopting any test that we please, south London takes the undisputed lead in poverty. Its poverty diminishes indeed as we leave the banks of the Thames; but, despite of considerable public ameliorative action and private philanthropy, there seems to be something wanting in the district. There is on the whole less social life. "An area with about 33,000 inhabitants lying between Blackfriars and London Bridge" has "close" upon 68 per cent. of poor.

The maps, on which the streets are differently coloured, are perhaps the most novel and remarkable part of Mr. Booth's second volume—and the different colourings are explained in his second chapter. Black corresponds to Class A, which consists of occasional labourers, loafers, and criminals. Dark blue corresponds to the very poor of Class B; light blue to the standard poverty of C and D; purple consists of C and D with E and F and a mixture of B. Pink represents working-class comfort as shown in E and F and G. Red includes the well-to-do, who keep one or two servants, and yellow the wealthy. Detailed descriptions are given of samples of the various classes; and these are followed by tables in which the streets are arranged according to the proportion found in them of A and B plus half of C and D—a plan which, the editor observes, seems to yield the most trustworthy order of poverty. In further tables an endeavour is made to classify the causes of the poverty thus exhibited. These maps, again, disclose the unenviable preeminence of south London, and they furnish abundant material for the reflection of the statistical student and the social reformer. Both classes alike will be grateful to Mr. Booth for the immense trouble which must necessarily have been expended on their preparation.

Dictionary of Political Economy. Edited by R. H. Inglis Palgrave. First part. Abatement—Bede. London: Macmillan and Co., 1891.

The present year promises to be notable in the history of economic study in this country on account of the realisation of two important projects which have for some time been contemplated. It has seen the publication of the first number of the *Economic Journal;* and the volume before us forms the first part of Mr. Palgrave's *Dictionary of Political Economy.* That such a dictionary was in active preparation has for the past two or three years been generally known to economic students, for the editor has enrolled among his contributors nearly every economist in this country. As the result of this comprehensive spirit he has been able to intrust the treatment of the various topics to those who have devoted especial attention to them; and in the present part it is not merely the case that Mr. Bonar, Professor Edgeworth, Professor Ingram, Mr. Keynes, Professor Munro, and Professor Nicholson are numbered among the contributors, but Judge Chalmers writes on Bankruptcy Law, Mr. T. H. Elliott on the Audit Office, Mr. Hendriks on Annuity, Mr. Prothero on Agriculture, Mr. Ritchie on Aristotle, Professor Roberts-Austen on Alloy, and Mr. Waterhouse on Audit. The editor has also obtained the aid of foreign contributors—from Canada and the United States in the persons of Professors Ashley, Dunbar, Dewey, and Taussig; from France, despite of the simultaneous appearance in that country as in Germany of an economic dictionary, in the persons of MM. A. Courtois fils, and A. de Foville; from Austria in the person of Dr. Bauer; and from Italy in that of Signor Pantaleoni; and he has received promises of contributions from several other economists and statisticians. The full title of the dictionary states that it will "contain articles on the main subjects usually dealt with by economic writers, with explanations of legal and business terms which may be found in their works, and short notices of deceased English, American, and French economists, and their chief contributions to economic literature;" and the editor, describing the plan of the work in his preface, says that his aim "is to give a statement of the position of Political Economy at the present time, together with such references to history, law, and commerce as may be of use both in economic and general reading." "It is intended to assist alike the student—whether working with a teacher, or seeking to instruct himself without such assistance—the man of business who looks at matters from a practical side, and the general reader." A bibliography is appended to the different articles; and, where controversies are touched upon, an attempt is made to give an unbiassed statement of the arguments and conclusions of the chief writers on opposite sides. The Dictionary is to be published in parts of 128 pages each, and is to consist of twelve or fourteen such parts, which are to be issued at intervals of about three months.

Contemporary Socialism. By John Rae, M.A. Second edition, revised and enlarged. London: Swan, Sonnenschein, and Co.

Mr. Rae's *Contemporary Socialism* has justly earned the repute of being the most thorough exposition of modern socialistic thought and action which is to be found in the English language. It is true that M. de Laveleye's well known work on the subject has, since the appearance of Mr. Rae's first edition, been translated into English; and Mr. Rae would, we think, be the first to admit that he was himself largely indebted to the material contained in that book. This was, indeed, to a greater extent the case with his first than it is with his second edition; for not only has he thoroughly revised, but he has also considerably enlarged, his treatise in the interval. As he states in the preface, "a new chapter has been added on Anarchism, and another of considerable extent on State Socialism." In the first of these chapters Mr. Rae shows that anarchism is often misunderstood, that there are divisions amongst anarchists as amongst nearly all socialists, but that they are still essentially part of the modern socialist movement, representing the extremer element, and pushing to a further point its leading characteristics. They are more *socialist*, because they would add to common property and common production common enjoyment of products. They are more *revolutionary*, and would substitute propaganda of deed for propaganda of word; and they are more *democratic*, because they will tolerate no government but that of each little industrial group managing its own affairs. The new chapter on State Socialism is divided into five sections. In the first the relation of State Socialism to English economics is considered, in the second the nature and principle of State Socialism, in the third its relations to social reform, in the fourth the bearing of State management on the question, in the fifth the connection of State Socialism with popular right. Mr. Rae shows how vague and mistaken is much that is thought and written on the subject, how orthodox English economists such as McCulloch have never embraced a rigid theory of *laissez faire*, and how recent English legislation has proceeded largely on traditional lines. Besides these new chapters in the present edition, the chapters on the Progress and Present Position of Socialism and on Russian Nihilism, with the exception of a few sentences, are, Mr. Rae states, entirely new; the former, because of the progress of events, the latter in consequence of important material recently given to the world. The first of these chapters follows an Introduction, in which Mr. Rae carefully indicates the nature of modern socialism, and its relations to democracy. In the chapter on the Progress and Present Position of Socialism he traces its influence, and measures its power, in the various countries of Europe and in the United States of America. He then proceeds in succeeding chapters to describe the proposals and schemes of Lassalle, of Marx, and of Marlo, and to exhibit the opinions of the Socialists of the Chair and the Christian Socialists. In the next chapter he discusses Anarchism; and, after dealing with Russian Nihilism in the following chapter, he devotes a chapter to Socialism and the Social Question, in which he points out that the socialist criticism of the existing *régime* is exaggerated and fallacious, and that many of the present evils can be ameliorated by other remedies than those prescribed in the socialist scheme. This chapter is followed by that on State Socialism, and the concluding chapter of the volume is occupied with a criticism of Mr. Henry George on Agrarian Socialism. Every phase, in short, of modern socialism receives its due attention; the literature of the subject is continually quoted, and to so recent a date is the book now brought down, that Mr. Edward Bellamy's Nationalism, and the Pope's Encyclical, and a "Plea for Liberty" find a place in its pages. The good qualities of the former edition are preserved—the fairness with which the various authors criticised have their opinions stated, and the thoroughness with which their views are examined and tested; and to these qualities the work of revision has brought additional care of statement and fullness of exposition.

The Railways and the Traders. By W. M. Acworth. London: John Murray, 1891.

By his books on the *Railways of England* and the *Railways of Scotland*, Mr. Acworth established a reputation for dealing with the details of railway management in a manner at once popular and authoritative. In the present volume he has succeeded in presenting in a readable shape a *résumé* of the points at issue between the railways and the traders, to which legislative expression has recently been given. That legislation may perhaps be said to have inclined in favour of the traders, and Mr. Acworth avowedly writes from the standpoint of the railways. He entitles his book "A Sketch of the Railway Rates Question in Theory and Practice," and he devotes himself in the main to an examination of the arguments put forward and the charges preferred against the present management of the English railway companies. He presents in a popular and readable form much that can only be found in such larger and more technical works as Professor Hadley's *Railroad Transportation*, and the late Mr. Grierson's book. He regards railway companies as essentially business undertakings conducted on business principles, whose interest lies in studying, and meeting as far as may be possible, the wishes of their customers; and he considers that many of the complaints made against them are founded on limited knowledge of the facts, are contradictory to one another, or are unreasonable. After an introduction, he considers in his first part Railway Principles; and he points out the difficulties —insuperable as he holds—of applying the principle of cost of carriage, which it is impossible to ascertain in each individual case, or that of equal mileage rates, to the determination of railway charges. He explains what is really meant by the principle of charging what the traffic will bear, and he maintains that railway managers are on the whole the most likely to arrive at the most satisfactory judgment on this point. In part ii he passes to the consideration of railway practice, and compares English with continental and American rates. He arrives at the conclusion that the conditions are essentially different. Continental charges do not include the facilities which are comprehended in English charges, and American railways deal with goods for longer distances and in greater bulk, and are more peremptory in their regulations. In part iii he examines the "problem for parliament," investigating the history of parliamentary action on the matter, and criticising adversely the Board of Trade provisional orders. He deals in detail with the vexed questions of terminals, of classification, and maxima rates.

Principii di Economia Pura. Per Maffeo Pantaleoni. Firenze: G. Barbèra, 1889.

This little manual forms one of a series on juridical, social, and political science which is being published at Florence. In a previous number of the *Journal* we noticed another volume of the series, which has passed into a second edition, and we hope that the volume before us may meet with similar success. Signor Pantaleoni is known in this country as a distinguished economist of the school of thought, which is sometimes styled the English school, because, in accordance with English traditions, it believes firmly in the possibility and advantage of a scientific theory of economics as the necessary basis of any practical economic art. In the manual before us the author devotes himself to an examination of the fundamental theories and the chief definitions of this science, which he distinguishes as pure economics. In this examination he avails himself of the aid of several diagrams, and he introduces into his treatment that additional precision of statement, which is largely due to the mathematical handling of economic theory especially associated in this country with the name of Jevons. The theory of maximum satisfaction and the conception of final utility occupy a very large space, as their importance deserves, in his pages, and Signor Pantaleoni has made considerable use of the writings of Professor Marshall on the theory of demand and supply. His manual is divided into three parts. In the first he considers the theory of utility, and he defines economic science as consisting of the laws of wealth, which determine how the maximum satisfaction of wants may be secured with the minimum of individual sacrifice. He investigates the theory of maximum satisfaction, the character and relative intensity of our wants, the nature of total and final utility, of positive and negative utility, of actual and prospective utility, and the methods and difficulties of measuring and comparing the wealth of nations and individuals from place to place and time to time. In the second part he proceeds to examine the theory of value. He investigates the conditions which determine value under monopoly and under free competition, and the law of demand and supply; and in the third and concluding part he considers the application of the general theory of value to money, to capital, to natural agents, and to labour.

Studi sulla Teorica del Valore nel Cambio Interno. Par Giulio Alessio. Torino: Bocca, 1890.

Professor Alessio's treatise is devoted to a critical review of the theory of value in domestic exchanges. The subject is one of great importance, for the theory of value may justly be regarded as the central theory of economic science; and, as Professor Alessio shows, it has been handled in different ways, and from standpoints which seem to conflict, by different economists. He endeavours to distinguish these different methods of treatment from one another, by arranging them under three main groups. The first he terms the orthodox theory, which is connected with the cost of production; the second approaches the subject from the side of demand rather than that of supply, and is the theory of final utility, and the third he calls *la Teoria del Valore Estimativo*, or the theory of value in use. These different theories he examines in succeeding chapters. The orthodox theory is first stated in its connection with market and normal value. The objections made by Say and Malthus to Ricardo's conception, and the theories of Hermann, of Cournot, of Torrens, Bailey, Ramsay, and Stirling are successively noticed. The doctrine of cost of reproduction, considered as an attempt to rehabilitate the theory, is critically examined, and the socialistic theory of Marx investigated; and the relative nature of Ricardo's theory, with its defects, is then pointed out. In the next chapter the application of the mathematical treatment to economics in the hands of Gossen, Jevons, Menger, Wieser, Marshall, Walras, Edgeworth, Auspitz, and Liehen is critically reviewed, and the conception of final utility explained and tested. In the following chapter, what Professor Alessio calls *la Teoria del Valore Estimativo*, as arising from the subjective impression of the mind, rather than the objective quality of the commodity, is subjected to a similar treatment. The traces of this theory to be found in Turgot and some Italian writers are shown, and its history and development are sketched. In the fifth and concluding chapter the author points out the way in which *la estimazione sociale* influences value under a primitive economy, under a *régime* of slavery and privilege, and under a system of free competition, how goods and services are graduated in value according to the urgency of the wants they satisfy, the result being determined by their utility, and the difficulty of their acquisition, and how the contributions of natural forces, of labour, intellectual and manual, and of capital to the product, affect the question. On the whole the Paduan professor seems to arrive at a conclusion to which perhaps most economists in this country are tending, that the time has arrived for gathering up the elements of truth in each theory, and, that, by rejecting what is extreme, it is possible to coordinate what is left.

The Growth of English Industry and Commerce—Early and Middle Ages. By the Rev. W. Cunningham, D.D. Cambridge University Press, 1890.

This is a new edition of a work already published by Dr. Cunningham in 1882, but much enlarged, and containing much new matter. It is a great improvement on the first edition: the disposition of the work remains the same, but more "history," in the commoner acceptance of the word, has been introduced, which, taken with the fact that the date of each incident is almost invariably given, makes the sequence of events much more clearly understood than the original smaller work. At the same time, none of the important matter in the first edition is omitted; at least up to the period comprised in the new book, for the latter is to be followed by a second instalment embracing the later history of our industry and commerce, though why the author should not put Vol. I on the book does not appear. After an introductory essay (contrasting the England of the present day with the England of the Normans, and discussing the scope of economic history), the author begins by showing how the necessity of industry would be gradually felt among savage nations, as experience and circumstances taught them the value of forethought. This was the position of the English when settled in Frisia, prior to their conquest of Britain. Dr. Cunningham has not been content with merely detailing the growth of industry, but he examines carefully the reasons, especially from the economic point of view, which led to the changes in ideas, and consequently in habits; in fact the book, to a great extent, comprises the history of economic ideas in their earlier form. With the settlement of the Danes in England we have the first signs of external trade. (This is one of the new subjects scarcely touched upon in the first edition.) In the time of the Norman kings, feudalism was of course the most noticeable feature of the times, and in those days the influence of the king on the industry of the country was very strongly marked. Industry was almost at a standstill in the twelfth century, owing to the general anarchy, but under the Edwards a great improvement takes place. The Jews and Lombards now play an important part, though a curious characteristic of these times is the objection entertained not only to usury, but to any interest on money lent, unless there be a special risk. The great problem now, as indeed it is more or less during the whole of the middle ages, is to prevent foreign competition, and endless regulations are put in force with this object. It is during this period also that the craft guilds become firmly established. Commerce, both internal and external, is still greatly hampered by piracy, and the system of reprisals. Later, measures have to be taken to protect agriculture, the land being so much taken up for sheep farming that the poor could scarcely find enough land to grow their own crops. Another important question was the regulation of prices and wages, which the State endeavoured to effect without the medium of competition. The author then points out the reasons for the various changes under the Tudors (he does not however take us beyond the accession of Elizabeth), the chief of these being the constant endeavour of the king to enrich himself at the expense of his subjects, which led to the frequent debasement of the coinage, and to the decline of the craft guilds, and the geographical discoveries. There are several appendices—mostly differing from those in the first edition—of manorial records, municipal life, the assize of bread, the wool trade, and Oresme's tract on Money. The general reader would perhaps be enabled to follow the author more easily if several mediæval terms had been a little more fully explained, as well as the origin and reason of some institutions and records: the *Hundred Rolls* and the *Great Roll of the Pipe*, are not as familiar to most people as Domesday Book; and again, it is not until the *Aulnager* is mentioned for the third (and last) time that his duties are clearly defined.

Problems of Greater Britain. By the Right Hon. Sir Charles Dilke, Bart. London: Macmillan and Co., 1890.

The general "problem" which Sir Charles Dilke has set himself to discuss in this work is that of the relations between the different component parts of the British empire and the mother country, considering more especially how far they tend to separate from Great Britain in order to become either independent or dependent on some other power. The book is divided into eight parts, of which the first five examine the condition of British North America, Australasia, South Africa, India, and the Crown colonies. This first portion deals chiefly with the actual political condition of the different colonies, the local peculiarities in the government of each, the views of the different statesmen, the various nationalities, classes, and religions of the inhabitants, their defence, &c. Besides these general subjects, the questions appertaining more particularly to each are dealt with in this portion, such as in Newfoundland the fishery question; in Canada the possible absorption of the colony by the United States, the overland route to Japan, immigration; in Australasia federation, both imperial and Australasian, and the protectionist or free trade tendency of the different colonies; in South Africa the relations with the Transvaal and the railways; and in India the defence of the Afghanistan frontier against Russia. There are, however, several problems which are scarcely touched upon, such as the Behring sea fisheries and the relief of famine stricken districts in India. A special chapter is devoted to the relations of the United States with Canada and the West Indies, dealing also with the proposed reciprocity treaties. The author here pays a good deal of attention to the alleged rapid increase of the negro population in the southern States. From the economic point of view the most interesting portion of the work is part vi, dealing with "Colonial Problems," of which the several chapters are *Colonial Democracy*, on the opinions and representation of the "masses;" *Labour, Provident Societies, and the Poor*, which gives a very extensive account of the social conditions of the working classes, especially in Australia, where the eight hour day is universal, and discusses very fully the Chinese question; *Protection of Native Industries*, dealing principally with customs duties; *Education*, mostly compulsory and free; *Religion*, and *Liquor Laws*. In all these chapters, by far the greater part concerns Australia, while very little is said about India, and there are unfortunately no statistics. Part vii is on the "future relations between the mother country and the remainder of the empire," and discusses the question of imperial federation; while the eighth part is devoted to imperial defence. The maps are remarkably clear, containing neither more nor less names than are required to illustrate the text, an advantage not usually met with.

Statistik des Consums in Lübeck von 1836-68. Von Gustav H. Schmidt. Jena: Gustav Fischer, 1891.

In this little work of 70 pages, various statistics of the consumption of the principal articles of food in Lübeck have been extracted from the records of the customs duties levied on imports during the period under consideration. Of course, in towns where no *octroi* is levied such tables could not be procured, but even with this means the figures cannot be taken as absolutely correct owing to smuggling and false returns. An attempt was made at one time to get at the consumption of wine and spirits by issuing forms to be filled in by householders: the majority returned the forms without vouchsafing any information. For some articles there are no returns; there are no figures for most vegetables, and no small fruit is mentioned, while statistics for coffee are also absent. For the other articles however the tables (of which the book principally consists) are very complete and instructive, and the author takes pains to explain the various fluctuations in quantities and prices. Of these the most marked which appear in every table are caused by the famine of 1847, and the scarcity of provisions combined with the difficulty of procuring them by sea owing to the war in 1854-56. A noticeable feature is the steady increase in the number of cows consumed in preference to oxen. In 1836 there were eaten 1,185 oxen and 584 cows, in 1854 456 oxen and 1,468 cows; since then the number of oxen has increased to 905 in 1868, while at the same date 2,167 cows were used for food. The first portion of the book consists of the tables of the quantities of each article consumed, *i.e.*, the quantities on which the duty was paid; including also the consumption of coal and wood; the author next considers the amount per 1,000 or per head of the population, and lastly the monthly prices for the whole time and the yearly and monthly means of cereals (and bread, &c.) and potatoes. A short account is then given of the rent of lodgings, the average wages of workmen, and the average expenditure of a workman's family on food and combustibles. The weights and measures as well as the money are all according to the old Lübeck system.

Report presented to both Houses of Parliament on the Influenza Epidemic of 1889-90. By Dr. Parsons. London: Eyre and Spottiswoode, 1891.

Dr. Parsons gives us in this Report a most exhaustive discussion on the course of the epidemic which raged over the whole world at the end of 1889 and the beginning of 1890. On the whole it may be said that the most important questions as to the nature, origin, and causes of the disease are not yet answered. The theory at first propounded, that it originated in the vast deposits of mud strewn over the land by the floods of the Hoangho in 1888, seems quite untenable. China itself was not attacked till February, 1890, and then the epidemic first declared itself in the seaports. The earliest reliable outbreak in an epidemic form occurred at Bokhara in May, 1889, and from there it spread over the whole world, *viâ* Russia, with which country Bokhara has most communications. Two other simultaneous outbreaks are recorded, namely, in Greenland and Athabasca; but these did not spread, owing to the sparseness of their population. The course of the epidemic is well shown by maps and chronological tables. The clinical history is next given. and the resemblance of influenza to dengué fever, as also the difference between the two, are discussed, while an elaborate research is made into all the possible causes of the disease, none of those as yet propounded, however, being satisfactory. One of the tables shows that influenza is always present, though not in an epidemic form. Deaths are recorded regularly in London, and it appears that the number has steadily declined since the epidemic of 1847-48, the minimum being in 1889. In Russia also "la grippe" figures largely in ordinary years. Attention is given to the meteorological conditions prevalent during the winter, which have been advanced by some as a cause of the sudden development in an epidemic form, but with no good grounds. An inquiry was made of all the medical officers of health, as well as other medical men in the United Kingdom, with a view to establishing whether the disease was contagious or infectious. Opinions varied much, and the only conclusion arrived at as yet is that it is "catching." Dr. Parsons then passes under review the course of the disease in the public services and in public institutions, and there is added a report by Dr. Bruce Low on the epidemic in the eastern counties. To sum up, a mass of evidence and of statistics is brought to bear on the discussion of each separate, and on every possible, head; yet influenza remains as great a mystery as ever. One minor point which adds much to the clearness of the Report is the careful manner in which the two illnesses known under the name of influenza are kept separate. A table gives the number of deaths from influenza in London during the last fifty years, but no clue is given as to the number of deaths in the United Kingdom from the same cause; and it is stated that these figures cannot be given till the Registrar-General's annual report for 1890 is published. This is rather a pity, as the absence of these figures is very conspicuous, and until they are furnished the Report cannot but be considered as incomplete.

Laws of the United States relating to Currency, Finance, and Banking from 1789 *to* 1891. Compiled by Charles F. Dunbar. Boston: Ginn and Co., 1891.

This is a valuable and handy compilation, and no better comment upon its scope could be made than by reprinting the preface, which is as follows:—

"In making this collection my object has been to bring within the easy reach of students and teachers of political economy and history the important parts of our national legislation respecting currency, coinage, loans, and banking. For this purpose the Acts of Congress have been carefully examined, and the leading provisions upon these subjects are now presented in their chronological order, following with precision the text given in the statutes at large. Acts and provisions of less consequence in financial history, but still likely to require occasional attention, have been abridged or described in their natural connection. Finally, Acts and provisions seldom referred to in ordinary use, as, for example, those relating to small loans, to banks in the district of Columbia, and to minor coinage, together with most provisions which are strictly administrative or punitive, have been omitted altogether as lying outside of the necessary limits of a book intended for use as a manual.

"Little reference has been made to the revised statutes, the object of the compilation not being to present a view of subsisting law at any one period, past or present, but to give the course of legislation accurately and with sufficient fulness to enable the student to make a thorough examination of it without the necessity of constant reference to the formidable collection of statutes at large.

"Besides the Acts and resolutions of Congress, treated as above stated, certain vetoed bills and a few other papers of historical importance have been added in order to facilitate reference to a class of documents which the student of political and economic history often finds as valuable, for purposes of study, as the measures which actually secure a place on the pages of the statute book."

In conclusion, it may well be said that the compiler has succeeded in his task of preparing this collection, which will be of value and practical utility to all students of political economy, more especially in its financial branches.

VIII.—*Additions to the Library.*

Additions to the Library during the Quarter ended 30th September, 1891, *arranged alphabetically under the following heads:*—(a) *Foreign Countries;* (b) *India, Colonial and other Possessions;* (c) *United Kingdom and its several Divisions;* (d) *Authors, &c.;* (e) *Societies, &c.* (*British*); (f) *Periodicals, &c.* (*British*).

Donations.	By whom Presented.
(a) **Foreign Countries.**	
Argentine Republic—	
Anales del Departamento Nacional de Higiéne. Año I. May—June, 1891	The Department
Datos trimestrales del Comercio exterior. Año 1891. Nos. 69, 70. 8vo.	The National Statistical Departmen'
BUENOS AYRES. Boletin mensual de Estadistica Municipal. April—June, 1891	The Municipal Statistical Bureau
Austria and Hungary—	
Oesterreichisches Statistisches Handbuch. Neunter Jahrgang, 1890. 8vo.	The Central Statistical Commission
Jahresberichte der k. und k. österr.-ungarischen Consulats-Behörden, 1890. 12 parts, 8vo.	The Bureau of Statistics, Ministry of Commerce
Nachrichten über Industrie, Handel und Verkehr—	
1. Statistik des österreichischen Post- und Telegraphenwesens, 1889	
2. Werthe für die Mengeneinheiten der im Jahre 1889 im . . . Zollgebiete ein- und ausgeführten Waaren	
3. Hauptergebnisse der österreichischen Eisenbahn-Statistik im Jahre 1889	
Statistische Nachrichten über die Eisenbahnen der österr.-ungarischen Monarchie, für 1888. Fol. 1891	
Statistische Uebersichten betreffend den auswärtigen Handel des oesterreichisch-ungarischen Zollgebiets. March—June, 1891	
Banken. Statistik der, für 1888 und 1889. Fol.	The Central Statistical Commission
Bewegung der Bevolkerung im 1889. Fol.	
Handels-Werthe. Bericht über die Erhebung der, und Haupt-Ergebnisse des auswartigen Handels im 1889	
Rechtspflege. Die Ergebnisse der Civilrechtspflege, 1887	
Statistische Monatschrift. April—June, 1891	
Hungary—	
Hivatalos Statistikai Közlemények. Magyarorszag Vizeinek Statistikaja. 2 vols., 4to., diagrams. 1891	The Royal Hungarian Statistical Bureau
Magyarorszag Aruforgalma Ausztriaval es mas Orszagokkal. (Monthly Trade Returns.) Jan. and Feb., 1891	
Ungarns Waarenverkehr mit Oesterreich und anderen Ländern. July—Dec., 1890. Fol.	
Ungarns Waarenverkehr mit Oesterreich und anderen Ländern, für das Jahr 1890. Fol.	
Das Handels-Museum. Band VI. Nos. 24—27. 1891. Fol.	

Donations—Contd.

Donations.	By whom Presented.
(a) **Foreign Countries**—*Contd.*	
Austria and Hungary—*Contd.*	
Budapest. Die Königliche Freistadt Pest im Jahre 1870. Resultate der Volkszählung und Volksbeschreibung. Diagrams, 8vo. 1871	—
Prague. Bulletin hebdomadaire de la Ville de Prague et des Communes-faubourgs. (Current numbers)	The Statistical Bureau of Prague
Les Roumains Hongrois et la Nation Hongroise . . . Publié par les Etudiants de la Hongrie. 64 pp., 8vo. Budapest, 1891	The Publishers
Belgium—	
Annales des Travaux Publics. Tome xlviii. Cahier 4. Plates. 8vo. 1891	The Administration of Mines
Mouvement Commercial avec les Pays Etrangers. May—Aug., 1891	The Bureau of General Statistics
Brussels. Bulletin hebdomadaire de Statistique Démographique et Médicale. (Current numbers)	Dr. E. Janssens
Bulgaria—	
Statistique du Commerce de la Principauté avec les Pays Etrangers pendant 1890. La. 8vo. Mouvement de la Population dans la Principauté pendant 1888. La. 8vo.	The Statistical Bureau
China—	
Customs Gazette for Jan.—March, 1891. 4to. Returns of Trade and Trade Reports for 1890. Part 2, Reports and Statistics for each part, and for Corea. 4to. Map and diagrams	Sir Robert Hart, G.C.M.G., Peking
Denmark—	
La Marine marchande et la Navigation du Royaume en 1890	The Danish Statistical Bureau
Denmark: its Medical Organisation, Hygiene, and Demography. Published with subvention of the Danish Government. Presented to the Seventh International Congress of Hygiene and Demography, London, 1891. Plates and diagrams. 8vo. Copenhagen, 1891	The President, Dr. F. J. Mouat
Nationalökonomisk Tidskrift. Ny Række. Hefte 3. 1891	The Danish Political Economy Society
Egypt—	
Egyptian Daira Sanieh. Note upon the Results of 1890. 8vo.	C. M. Kennedy, Esq., C.B.
Comité de Conservation de Monuments de l'Art Arabe. Exercice 1890. Fasc. 7. Procès-Verbaux des Séances. Rapports de la 2^e Commission. Plans. 8vo. Le Caire, 1890	The Committee
France—	
Ministère de l'Agriculture. Bulletin. 10^e année, Nos. 2, June; 3, Aug., 1891. 8vo.	The Ministry of Agriculture
Ministère des Finances. Bulletin de Statistique et de Législation comparée. June—August, 1891	The Ministry of Finance

Donations—Contd.

Donations.	By whom Presented.
(a) **Foreign Countries**—*Contd.*	
France—*Contd.*	
Ministère des Travaux Publics. Bulletin de Statistique et Législation comparée. May, 1885; Jan., Feb., et Sept., 1890; June, July, 1891. 8vo.	The Ministry of Public Works
Justice Civile et Commerciale. Compte Général de l'administration de la, en France et en Algerie pendant 1888	The Ministry of Justice
Justice Criminelle. Compte Général de l'administration de la, en France et en Algerie pendant 1888. 4to.	
Contribution foncière des propriétés non bâties. Rapport . . . par M. Boutin sur les opérations du répartement et du sous-répartement en 1890 pour 1891. Diagram-maps, 4to.	Dr. F. J. Mouat, President
Résultats du dénombrement du 12 Avril, 1891. (Proof, 8vo.)	M. Vannacque
L'Economiste Français. (Current weekly numbers)	The Editor
Le Monde Economique. (Current weekly numbers)	"
Polybiblion. Revue Bibliographique Universelle—	
Partie Littéraire. June—Aug., 1891	"
Partie Technique. June—Aug., 1891	
La Réforme Sociale. Bulletin de la Société d'Economie Sociale. Nos. 12—15, 1891. 8vo.	—
Le Rentier. Journal Financier Politique. (Current numbers)	The Editor
Revue Géographique Internationale. April—Sept., 1891	"
Revue d'Economie Politique—	
May—June. Statistique des Mariages: *H. Westergaard.* Les grands magasins et le petit commerce: *V. Mataja.* La propriété foncière au Japon: *Dr. Nitobé*	The Publishers
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JOURNAL

OF THE ROYAL STATISTICAL SOCIETY,

DECEMBER, 1891.

The Opening Address *of* F. J. Mouat, M.D., F.R.C.S., LL.D., President *of the* Royal Statistical Society. *Session* 1891-92. Delivered 17*th November*, 1891.

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1. I have but a plain unvarnished tale to unfold on this, the second occasion on which it has fallen to my lot to discharge the duty of addressing this Society as its President, on the opening of a new session of work. Statistics, whether as a science or a method in its application to the practical purposes for which it exists, fortunately does not lend itself to sensational statements or to surprises, nor when it is honestly used does it need rhetorical artifices to secure attention to its teachings.

Introduction.

These were defined on the foundation of our Society in 1834, "to be the collection, arrangement, and publication of facts to illustrate the conditions "and prospects of society." The definition of its scope was so well stated by the famous Master of Trinity, when President of the British Association of the year in which a statistical section was added to that body, that I am tempted to reproduce it now, since two attempts were made in the Demographic Section of the recent congress, one I am sorry to say with success, to introduce the thin edge of a wedge which brought it within the reach and range of one of the most controversial political questions of the

Definition of the functions of the Society.

day, hence the need of directing special attention to it now to prevent its recurrence.

Speaking of the great scientific body over which he then presided, Professor Whewell stated "that all things comprehended "under the categories of space, time, and numbers properly belong "to our investigations, and all phenomena capable of being brought "under the semblance of a law are legitimate objects of our "inquiries. But there are many important branches of human "contemplation which come under none of these heads, being "separated from them by new elements, for they bear upon the "passions, feelings, and affections of our nature." He referred particularly to what he termed the dreary world of politics, which he regarded as a demon of discord altogether out of place in the calm and passionless field of philosophy and science.

Nevertheless, the employment of the numerical method to aid in formulating the laws which regulate all branches of science, moral and material, is not only perfectly legitimate but necessary to their right understanding, and to guide the legislature upon such social questions as the restriction of the hours of labour, the limitation of the interference of the State in the freedom of action of all who are able to judge for themselves as to the disposal of their time and talents in their appointed work, and similar questions of current politics, with which statistics have nothing further to do.

It was my intention to have devoted this address to a general review of statistical science in its various relations, having special reference to our own work, for there never was a time in which the misuse and abuse of figures from ignorance or design were more prevalent and mischievous than they are now; but, I found that the vast amount of information of more or less value which it would be necessary to consult and condense, rendered it impracticable, even were I qualified to undertake it.

Real purpose of an opening address.

It appears to me moreover to be more appropriate in an opening discourse to review our own past work, and to establish some continuity in it, with a view to ascertain how far we are in touch and harmony with the requirements of the time, in dealing, from a purely statistical standpoint, with such social, economic, and scientific matters as are of current interest or urgent application.

In fact our chief function seems to me to be, "to formulate the "past, to render the present fruitful, and to prepare the future."[1]

Brief analysis of the work of the past session.

2. The first paper read in the past session was by Sir Charles Dilke, on the "Statistics of the Defence Expen-"diture of the Chief Military and Naval "Powers," a subject of absorbing interest when all Europe is

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[1] Andral.

armed to the teeth, and in a state of unquiet, which may, at any moment, break into open war. With the political aspects of the question, however, we, as a Society, have nothing to do. The paper attracted more attention on the continent than at home, and although it dealt only with a portion of a very great matter, it exhibited strongly the vast waste of men and money, both of which might be more profitably employed in productive industry than in an armed neutrality, nearly as costly as war itself.

The next communication was by one of the most competent of reliable authorities upon the operation of the Contagious Diseases Acts, Inspector-General Lawson. It showed in a manner which has not been shaken by the immediate discussion which it caused, or the consideration of the question in one of the sections of the more recent Hygienic Congress, the disastrous effects of the repeal of the Acts on the health of the army and navy at home.

The third contribution was by Dr. Newsholme, on the "Vital "Statistics of the Peabody and other Labourers' and Artizans' Block "Buildings," and is a valuable addition to our knowledge of one of the most difficult problems awaiting solution in relation to the poorer inhabitants of this vast metropolis, viz., the housing of the poor and working classes. It was carefully considered by special committees in the early history of our Society, Royal Commissions have reported on it, and private enterprise, stimulated by philanthropic motives, has endeavoured to diminish the evils of over crowding in insanitary surroundings. But the extent of the evil, and its constant increase from the rapid abnormal growth of this modern Babylon, have heretofore prevented the adoption of any radical means of relief, and will continue to do so, until efficient measures can be adopted to improve the general condition of those who are at the same time the causers of, and sufferers from the dangerous conditions in which they are compelled to live.

My own paper, on "Prison Ethics and Prison Labour," followed. It was written to meet an emergency, and constructed partly from materials collected for the Penitentiary Congress of 1890, at St. Petersburg, and in part from statistics of 302,000 prisoners, gathered by me from official sources, and heretofore contained in an unknown official report. Some of the most important points considered in it are still unsettled questions, in spite of the principles advocated by the most eminent jurists who have written on the subject.

The fifth subject of discussion was from the pen of Dr. Steele, the medical superintendent of Guy's Hospital, and considered the charitable aspects of medical relief in the metropolis, based upon an intimate acquaintance with the question from many years of personal supervision, and exceptional experience of its working in one of the oldest and best managed institutions of its class in London. This contribution was of special value and interest, as embodying the most exact account we possess of an order of things which is now passing away, and being gradually adapted to the existing state of medicine both as a science and an art.

The next general meeting of the Society was occupied with a question of exceptional interest and importance in the study and practice of statistics, viz., "The Nature and Uses of Averages." It was treated with rare lucidity, and a thorough mastery of the subject, by one of the best exponents of the science—Dr. John Venn, of Cambridge. There is probably no branch of political arithmetic which is so little understood, and so constantly misapplied, as the calculation of averages—hence the value and importance of an illustration so perfect in its logic, so sound in its application, and so easily understood, as that with which the Society was favoured.

The last of the evening meetings of the session was devoted to the consideration of the general results of the recent census, as expounded by the Secretary appointed to conduct it. The public impatience to become acquainted with those results, was amply satisfied by Mr. Noel Humphreys in a manner, and with an authority possessed by no one else at that time, and with a clearness which left nothing to desire. The marvellous rapidity with which the press of this country obtains information regarding every question of public interest, or professes to do so, causes conjecture and erroneous information not unseldom to be accepted without too close a scrutiny of its accuracy, which is very generally in such circumstances a *quantité négligeable*. Hence those institutions, like our own, which can only publish accurate, well considered information, and at fixed periods, stand no chance in such a race. Its compensation consists, however, in its statements being of greater authority and of more permanent value than the fugitive pictures coloured by imagination, and too often intended to deceive.

The above brief analysis of the work of the past session appears to me to show clearly that we are in harmony with public feeling, and strictly fulfilling the ends of our existence.

Every one of the questions considered is still subject of inquiry and research, and the last word has not yet been said of any of them. The multiplication of journals, conducted with ability, and devoted to the consideration of every possible matter connected with art, science, economics, and sociology, in its widest sense, renders it impossible for any of our societies to attempt to keep pace with them. Hence, it is the more incumbent on us to cultivate rigorous regard to accuracy, and to indulge in no attempts to influence legislation by illegitimate means.

On the pursuit and application of our science.

The papers promised for the present session afford good grounds for the continuance of our work in a right spirit, and to uphold the well established character of the Society as a scientific body. The only novelty in it is an attempt which I have ventured to make to enlist some of our eminent foreign associates in our work by contributing papers to our transactions.[2] Excellent examples of this are afforded by M. Levasseur's admirable paper on "La Statistique Graphique," in our Jubilee volume; the sparkling and witty account of "La Statistique et ses Ennemis," by M. de Foville, as well as the foreign press notices of the Jubilee, in French and German, contained in the same volume. These are precedents which it seems to me to be desirable to continue and follow up, now that in every scheme of secondary and higher education in all countries, the increased cultivation of modern languages is contained in their curricula.

Obituary notices.

3. Among the duties which have to be performed on our meeting again for work, is to record the losses which the Society has sustained during the previous session. An enumeration of those who have passed away is contained in the last annual report. Among them were four who merit special mention as statisticians, and as connected with this Society.

Dr. Graham Balfour.

The severest loss of all to us was undoubtedly that of our late respected President, Dr. T. Graham Balfour. He not only contributed valuable papers to our transactions, all characterised by thoroughness and conscientious treatment, but he was in addition for many years an active member of our Council, served several times as Vice-President, and took a leading part in the discussion of those questions with which he was familiar. My knowledge of his work commenced long before I was personally acquainted with him, and dates from the period of my studentship in the University of Edinburgh, where I followed him soon after he entered the army. At that time I became known to Dr. Henry Marshall, who had selected Dr. Balfour for the important work which occupied the most active period of his life, and was the foundation of his statistical reputation, on the ground of his peculiar fitness for it at that early age. Another of the officers selected by him was ordered on foreign service, and Dr. Marshall wished me to qualify to succeed him, an offer which I was unable to accept.

When I landed at Madras in 1840, I was the guest of the principal medical officer of that Presidency, who put into my hands the returns and reports of the European troops in that command for the previous ten years. They were a mass of confusion, and with them he gave me the volumes then published of the statistics of the British army at home and abroad, to guide me in the detection of the errors which pervaded them, chiefly from the defective manner in which they were drawn up. I was much struck with the clearness, comprehensive nature, and mastery of figures of the work of Captain Tulloch and Dr. Balfour at a time when such matters were little studied, and with their aid I was able to recast and rearrange the Madras returns, and was permitted to publish the result in the "Calcutta Journal of "Natural History." My paper attracted the attention of Colonel Sykes, by whom I was in consequence invited to join this Society a little later on, in 1847.

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[2] The papers promised are by M. Troïnitsky of St. Petersburg, and Dr. Guillaume of Berne. That of Dr. Guillaume is entitled "Le nouveau bulletin "d'information des décès en Suisse."

Dr. Balfour subsequently originated and prepared for several years the army statistical reports, which were rightly regarded as valuable records and models of accuracy and comprehensiveness.

I cannot conclude this brief notice of him in more fitting terms than those employed in a sketch of his life published immediately after his death, in which he was represented to have been a really able man, of excellent common sense, and remarkably sound judgment, possessed of a vigorous and highly cultivated intellect, sincere and honest in all things, endowed with a keen sense of humour, a firm friend, and an excellent colleague.

Deaths of foreign Fellows.

It has not been the practice to notice specially those who have died among our distinguished Honorary Fellows, but I venture to think that, although they may not have taken an active part in our proceedings or communicated directly to our transactions, for reasons easy to understand, they undoubtedly took an interest in our work, and with many of them whom we have met at international gatherings friendships have been formed and much mutual esteem and regard arisen, which tend to produce an international amity that is of advantage to our pursuits, and may fairly be regarded as among the best, the most beneficial, and disinterested of peacemakers.

M. Anthony Beaujon.

The best known and most distinguished amongst the departures of the last session was M. Anthony Beaujon, Professor of Political Economy and Statistics in the University of Amsterdam, and director of the Statistical Institute of that city, who died in December last in his thirty-seventh year. Although removed at so early an age, he had attained a high position as an economist of the advanced school, and had gained the prize offered by his government for the history of the Dutch fisheries, written for the Fishery Exhibition in London. In it he showed by carefully collected statistical evidence that the policy of Protection against the competition of other nations was detrimental to themselves, and that on the removal of its fetters the Dutch fisheries, which were in a state of stagnation, at once began to revive. He wrote several treatises of merit and value, chiefly in Economics, on treaties of commerce and reciprocity, social mathematics, index numbers, the theory of prices, and poor relief in Holland. He was joint editor of the "Dutch Economist," and a general frequenter of demographic congresses and the International Statistical Institute, to which he attached a high value as bringing statisticians of different countries into personal contact, and thus enabling men of other schools of thought and action to compare, and contrast, and, if possible, to harmonise their methods.

M. Alexandre de Vessélovsky.

Another of our Honorary Fellows was H.E. M. Alexandre de Vessélovsky, Councillor of State, Member of the Statistical Council, and editor of the "Economiste Russe," who died from over-work whilst engaged in bringing that scientific journal through the press. He was a member of the International Statistical Institute, to which he communicated important information respecting the corn trade of his country.

Unfortunately his journal, which appears to have been well edited, and is in our library, has ceased to exist since his death. It was conducted on a distinctly statistical basis, and the information it contained, evidently obtained from official sources, appeared to be accurate and valuable. He was personally much esteemed by all who knew him as an indefatigable, painstaking, conscientious worker.

H.E. Ahmed Véfik Pacha.

The last of the Honorary Fellows of whom I wish to make special mention was H.E. Ahmed Véfik Pacha, who died in April of the present year, and has been described by one of our Fellows who knew him well, to have been among the most learned men of Turkey. The branches of European knowledge specially cultivated by him were statistics and historical research, and his writings were among the earliest which threw light upon the financial resources of the Turkish empire. His political career was one of great distinction, and as such men are very rare in any Eastern State, their memory deserves to be preserved in the records of any European institution with which they were associated, such as our Society and the Statistical Society of Paris, of both of which he was a member.

Inaugural address of 1890.

4. In connection with the branch of my address which deals with the occurrences of the past session, I cannot omit a reference to some of the matters to which I referred in my inaugural address of last year, as most of them are as much of present, as they were then of current or past interest.

Hospital inquiry.

The inquiry regarding hospitals which was then in progress, and has since been completed, will doubtless be duly reported when the branch of the legislature by which it was undertaken again meets. A careful perusal of the evidence published leads me, however, to fear that as some of the most important factors objected to in the present management of these institutions were not specifically inquired into, such remedies as may be suggested will scarcely remove the evils complained of, if restricted, as they must be, to that evidence. I have always been of opinion that public inquiries into technical matters in which those elements are not directly represented, seldom or never carry conviction or remedy evils in a satisfactory manner.

Housing of the poor, and Contagious Diseases Acts.

The subject of the housing of the poor formed an interesting branch of the work done in the Architectural Section of the late London congress, to which I have referred elsewhere; and so did that of the Contagious Diseases Acts in another section.

Anthropometry.

Regarding anthropometry I have more to say, as not only did it form one of the most interesting features of the Demographic Section of the London congress, but a provision regarding it has been introduced into the most recent Act on the subject of crime and its punishment. I was not aware when I mentioned the matter last year, that a truly colossal essay of its application to ethnology, had been made in India by direction of the Government, upon an inquiry into the tribes and castes of Bengal. The results of this inquiry, so far as it had gone, were intended to throw light upon the question of the castes and occupations of the people of Bengal, which were considered by the present ruler of that province to have an important bearing upon the next census, and that to postpone it until that census had been taken would render it impossible to make it so complete as it could then be made. It was also stated that the "late census (of 1881) "showed how rapidly the old aboriginal faiths are being effaced, "and what progress is being made in the absorption of the primi-"tive races in the great system of Hinduism. At the same time "the opening of communications, the increase in the facilities for "travel, and the spread of education, are tending to obliterate the "land marks of the Hindu faith, to slacken the bonds of caste, and "to provide occupations unknown to the ancient policy. There is "nothing to be gained and much to be lost by postponing this 'important work. If it is not undertaken now a mass of infor-"mation of unsurpassed interest will be lost to the world."[3]

It would naturally be supposed from this statement that this was the first inquiry instituted into a very great question, and yet that it was not so I will now show.

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[3] Report of Mr. H. H. Risley "On the Tribes and Castes of Bengal." Calcutta, 1891.

In my administration of the prison department of the Lower Provinces, I found so much difficulty in understanding the returns of the castes of prisoners in those provinces, that I determined to institute an inquiry of my own into the question, and accordingly, in 1867, I called upon the officers in charge of the prisons in my circle of superintendence, for a return of the castes and classes of the criminals in confinement in their several prisons, and the prevailing crimes of their several districts. This had become necessary from the extreme confusion that existed in the nomenclature and signification of the castes of the Hindus and sects of Mohammedans of the different districts of Bengal.

I received in reply a large amount of information, some of it exact and valuable, and much of it of little value. I printed the whole of the papers in the appendix to my official report of 1868, a copy of which is in our library, and on the table. I did not deem it advisable to suppress any portion of it on account of apparent inexactness, as every part afforded a land mark for future research. The whole question of caste was then, and is still, in a transition state in India. Near the great centres of government and of education its influence had become much weakened, and throughout the country it had been very gradually losing the semi-sacred character of its original institution, and becoming to a great extent an indication of the occupation rather than of the social status of an individual. It is a mistake, however, to suppose that among the great body of the people it has lost its hold, or could be safely disregarded in legislative enactments or in executive measures.[4]

The reason for the discontinuance of my inquiry is contained in the subjoined, extracted from my official report for 1867.[5] The

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[4] *Journal of the Statistical Society,* vol. xxxv, pp. 80 and 81, 1864.

[5] "Administration Report of the Jails of Bengal," vol. i, pp. 66 and 67. 1870.

"Several matters of great general interest were considered and discussed during the past year, but, in obedience to the orders of the Government directing me to restrict the extent of my reports as much as possible, I refrain from referring to them.

"I venture, however, most respectfully, to remark that in so important and difficult a subject as that of prison discipline, in which there is still so much room for improvement, and on which the minds of men require instruction, it seems to me that the facts to be collected cannot be recorded in too much detail, provided they are carefully collected and honestly digested.

"I myself do not attach the smallest importance to any administrative reports in which the whole of the facts and figures on which conclusions are based, are not given.

"It should also, I submit, not be put out of sight that the prison reports of the Lower Provinces refer to the criminal classes of some 40 millions* of people—the

* No census had then been taken.

Government of Bengal of that time attached little importance to such inquiries, respecting which, had I been permitted to continue it, I had accumulated much additional information of value, sufficient to enable me to classify, arrange, and digest the material in my possession, and correct some of the errors contained in it.

I am indebted to the courtesy of Sir William Hunter for a perusal of Mr. Risley's report, but it came too late into my possession to permit of my studying it sufficiently closely to express an opinion upon his methods and their results. I, however, consider that it is an extremely valuable addition to our knowledge, of which the results will doubtless be tested more accurately when the figures of the late Imperial census of India are published, and that it exhibits in comparatively a new light the value of anthropometry as a scientific and accurate instrument of observation and record in ethnology.

I may mention here that the late M. Quetelet entrusted to Mr. Lawson Tait, of Birmingham, and myself, the preparation in English of a new edition of his work on Anthropometry, for which he engaged to furnish us with notes bringing the information contained in it up to date. His death shortly afterwards prevented the accomplishment of this design.

I mention all this, because the question will doubtless be referred to by Mr. Baines, in the paper which he has promised on the Imperial Census of India in 1891, which has recently been completed under his direction.

External relations of the Society during the past session.

5. I will now proceed to consider the external relations of the Society with reference to the different bodies, in the proceedings of which it had a more or less direct interest by association with their work, either by delegation or otherwise.

The Imperial Institute.

6. I was present, as your representative, at the first general meeting of the Imperial Institute, held in Marlborough House under the presidence of its founder, and our

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very ethnological position of many of whom is not yet determined. Every fact bearing on their social relations is consequently of unusual interest, and so little is known regarding them, that I have heretofore deemed it desirable to gather and publish as much as I could obtain which tended to throw light on the subject.

"It was for this reason that I procured the information contained in my last report regarding the castes and crimes of the people of the various districts of Lower Bengal.

"I am of opinion that the paper referred to will be a historical document of considerable value some years hence, when a correct census of the people has been taken. The bearings of caste are now undergoing a slow and silent but certain revolution that will in a few years change many of its most important relations.

"I placed the paper in my report because the prisons furnished its chief illustrations, and to the prison populations it had its chief applications.

"In deference, however, to the orders of the Government, I have abandoned all further inquiry into the matter."

Honorary President, H.R.H. the Prince of Wales. The lucid, interesting, and detailed history of its inception and institution, prepared and read by Sir Frederick Abel, led me to believe that hereafter, when fully organised, it will afford a valuable field for the collection of the statistics of the most important productive resources of the British empire, on a scientific as well as popular plan. Hence I venture to think that the very valuable uses it is intended to fulfil would be greatly increased in a desirable direction, by an extension of its basis in a manner which I suggested some years since in connection with the formation of a permanent museum illustrating the geography and ethnology of the British empire, to complete the cycle of sciences represented at South Kensington.

There is probably no branch of knowledge taught in our primary and secondary schools which stands more in need of proper means and methods of cultivation, and of which the popular ignorance is greater or more widespread than Geography. Of the people inhabiting the globe, in an ethnological sense, there is no pretence of giving any instruction whatever, whereas Commerce, which is the *raison d'être* of the Institute, would gain in every way by being directly associated with the sources and peoples from which and from whom its materials are gathered. This addition again would introduce a purely popular element and source of attraction, without which, now-a-days, all such institutions as that I refer to, can scarcely hope to obtain financial success.

In July, 1873, I submitted a proposal on the subject to the Royal Commissioners of 1851, which was favourably received, and in consequence of which a department of Ethnology was added to the Exhibition. Of this department I was appointed Chairman. Although it laboured under very great disadvantages, an interesting collection of illustrations was gathered together, and the thanks of the Commission were given to the Committee which worked and organised it.

The following extracts from my proposal will best exhibit its aim and objects.

" Speaking of the exhibitions as then conducted (1873), I re-
" marked, that no person who had watched the gradual develop-
" ment of public taste, and the consequent increase of personal
" comfort in all that relates to the applications of art and science to
" the purposes of every day life, can have failed to perceive how
" well the exhibition of 1851 had done its work, and how vast a
" debt of gratitude all civilised nations owed to the illustrious
" and accomplished author of that landmark in the history of
" the present time, and indeed of all time.

" But, we live in an age of such rapid progress, restless move-

"ment, and constant craving for change, that most old landmarks "are being swept away, and that which attracted all the world "yesterday, to-day is already a thing of the past and neglected.

"How then are these fleeting feelings to be fixed, and the "fickle public to be brought back to some at least of the interest "which is palpably on the wane in such exhibitions of art and "industry as are now brought together annually at South "Kensington?

"One of the most likely means will, I think, be to add annually "to the exhibition, without reference to special branches of art and "industry, one or more departments or courts of a comprehensive "character, to illustrate the ethnography and geography of different "portions of the British empire.

"Of each the court should contain everything necessary to "show them as they are, viz., a raised map of their country on "a grand scale, images of types, life-sized, of the inhabitants in "their ordinary and gala costumes, samples of their domestic "utensils, weapons of war, boats and canoes, agricultural, musical, "and manufacturing instruments and implements, with samples of "their industries, models of their dwellings, &c.

"There should be also gathered together examples of the animal, "mineral, and vegetable products used by them or produced in "their countries, with views of some of their most striking places "and monuments.

"The materials thus collected I would not again disperse, but "place permanently at South Kensington to form the nucleus of "a museum of geography and ethnology, ultimately to embrace "the whole of the empire upon which the Sun never sets, in a "manner worthy of the object and of the nation.

"Were such a design once inaugurated, there are many persons "who would contribute examples of objects of interest connected "with each country illustrated; and if the varied and rich collec- "tions now scattered about were ultimately brought together under "one roof, it would be difficult to over-estimate the value and impor- "tance of the museum that would be formed."

Our exhibition report was duly submitted and approved, and the various illustrations were sent to South Kensington, some of considerable ethnological value and interest, but what ultimately became of them I have never heard. My own collection of the implements, &c., of the Andaman islanders was among them. I have mentioned this matter in some detail because the subject of the objects and uses of museums has recently been revived, I hope with better success than I was able to obtain from the numerous occasions on which I advocated them from 1854 to 1887.

In the former year I advised the formation in Calcutta of a trade museum for all India,[6] of the expediency of which I was strongly impressed by a careful study some years previously of her productive resources, when, in obedience to a request from the Governor-General, Lord Auckland, in 1841, I prepared for him an analytical report on Dr. Forbes Royle's well known work on the subject.

As this Society was asked to name a representative to the governing body of the Institute, and the duty fell upon me as President for the time being, I consider that I am in order in drawing attention to the subject.

The Congresses of the past year.

In continuing my parable of the external events of the past session in their relation to the Society, a prominent position must be given to the epidemic of congresses which prevailed, and more especially to those which had a more or less intimate relation to our own work.

I shall take them in the order of their occurrence, viz., the Penitentiary Congress of St. Petersburg, the Demographic Congress of London, and the International Statistical Institute, which was held at Vienna in September.

The Penitentiary Congress of St. Petersburg.

7. The first I was unable to attend for reasons on record, and as the *compte rendu* of its proceedings is not yet published, and I do not exactly know which of my contributions to it have been included in its proceedings,[7] I shall restrict my remarks to one of the practices of its procedure, regarding which I had some correspondence with its excellent general secretary, and which raises again the very important question of the *lingua franca* of the future, in international gatherings for scientific purposes.

One of the statutes of the Penitentiary Congress makes the employment of French compulsory, alike in relation to the papers submitted to, and the discussions of the congress, in whatever language the former may have been written. This is so entirely opposed to the prevailing practice of nearly every scientific international congress, and so unjust and injurious to those of other nations who have a claim to use their mother tongue on such occasions, as to demand notice with a view to its prevention in future. It is additionally out of place in Russia, of which the vernacular language is neither written nor spoken elsewhere, and where French, although more familiar, is as much a foreign tongue as either English, German, or Italian, all of which are as much entitled to consideration on their merits as exponents of scientific truths of the highest order, as that which is at present employed exclusively in penitentiary congresses. The Russians themselves again are probably the best and most accomplished linguists in Europe, and practice no such restriction in any communications, oral or written, addressed to themselves.

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[6] "Journal of the Society of Arts," February, 1872.

[7] Since the above was written, I have been furnished by my friend Dr. Guillaume with a copy of my paper on Prison Industry, printed in English in the Transactions, for which act of personal courtesy I return my best thanks. But it in no way affects my contention, which claims it as a right and not as a favour.

A reference to congresses similar in character to that which I am referring to, will show more clearly my meaning than any general remarks. In the International Statistical Congress held in London in 1860, English and French were used indifferently, and each speech or report was printed in the language in which it was spoken or written. In reporting the proceedings in the transactions, those in French were accompanied by a marginal analysis in English, and *vice versâ.*

In the Prison Congress held in London, 1872, English and French were also used indiscriminately, and when required were translated immediately for the benefit of those who desired it, chiefly by myself during the first four days of the congress. German was also spoken and written, and treated in the same manner at the meetings.

This linguistic question has frequently been considered, and reference to it is contained in my report to this Society published in our *Journal* on the last Statistical Congress, that of Buda Pest, in 1876.

Our German and Italian friends can doubtless protect themselves if they care to do so. I am only personally concerned to show what claim English has to receive greater consideration than is usually given to it. It was scarcely used at all, indeed was conspicuous by its absence recently in Vienna.

English is the language of commerce, which binds together all civilised communities in stronger and more intimate unison than any other tongue; it is already spoken by considerably more than 100 millions of the most practical and advanced people in the world, those to whom the general introduction of steam navigation, the electric telegraph, cheap postage, and railways are chiefly due, and much of the terminology of which is taken from it. It possesses a literature "vast in its scope, vast in its internal worth, "and universal in its application to all the purposes of art, science, "social life, and government," as Lord Macaulay wrote, when advocating its use in the higher education of the natives of India, of which great section of the British empire all its laws, regulations, and public, as well as among educated natives, much of its private correspondence, are conducted. Persian occupied, in the early history of our connection with India, the place now filled with so much grace by French in Europe, as the court language of those countries whose tongues are too much restricted to be used even partially elsewhere.

One of the greatest masters of our language said of it, in an address to the college of which I was at one time a student, that "English deserves the best cultivation we can bestow upon it, not "only on account of its historical importance, but likewise of its "intrinsic merit. We have no need to wince at the sneers which "Alfieri, when indignant at the comparative neglect of his own "sweet Italian, throws out at those languages which gain currency "at the point of the bayonet and are propagated by the movements "of fleets and armies! The diffusion of our language has followed "in the train of that series of pacific triumphs which has carried "civilisation to the furthest corners of the globe." What, again, says on the subject one whose testimony is of the highest value in this department of knowledge, the prince of German philologists, Jacob Grimm? Of it he wrote that the English language has the fullest right to be considered as a universal or world language, and that it is evidently designed by Providence to prevail over the remotest quarters of the world, as widely as the English nation itself; and he added that "for copiousness, for sense or logic, "I may call it *vernunft*, and for conciseness of expression, there is "no living language" (not even his own) "which can be justly "placed by its side."

I only claim for it equal rights in all international scientific assemblies, at all events in their published records, and that it shall appear in its own dress instead of in the motley of translation which can never represent or reproduce the spirit and shades of meaning of the original. This, I hope, our friends of all future Prison Congresses will bear in mind in their procedure, for we can surely claim to have done as much in advocating and adopting humane and enlightened methods of dealing with crime as any other nation, and more than most of them.

Congress of Hygiene and Demography.

8. With the Congress of Hygiene we have little to do or say on its purely technical aspects, and those interested in them have an opportunity of becoming acquainted with the views of an intelligent and friendly foreign critic in the number of the "Revue d'Hygiène et de Police "Sanitaire," specially devoted to it.[8] Its faults, and they were many, are duly noticed, and unstinted praise is given where it was deemed to be deserved, as in the section of bacteriology. As a scientific gathering it attempted too much, and accomplished too little, as all such overgrown bodies in which the dilettanti element is predominant, usually do. They are nevertheless not without an

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[8] "Revue d'Hygiène et Police Sanitaire." Tome viii. Août et Septembre, 1891, Nos. 8 et 9.

element of usefulness of far more humble pretensions; but to multiply sub-divisions by way of rendering it a "big thing," is scarcely the way to recommend them to all who consider popularising with vulgarising a very questionable benefit at any time and in any circumstances. Regarding one of its chief blots, M. A. J. Martin says generally: "Is it necessary in such gather-"ings to formulate resolutions even when the discussions have not "been carefully prepared in advance by well considered reports, of "which the general purport can be carefully studied and mastered? "He hoped to be pardoned for pronouncing them to be child's "play. The votes on the greater part of these resolutions are "determined by show of hands, without any serious objections "being raised, although some of them are open to serious criticism. "Everyone knows that they signify nothing, and that they bind "neither those who vote nor those who allow them to be voted. "The purpose of a scientific congress is to allow everyone to "draw his own conclusions from the papers and discussions, but "an assembly *sans mandat*, open to all comers, performs a puerile "function in emitting views which are voted by habit rather than "from conviction, and are without any practical sanction."

There were some flagrant, and more than one mischievous, example of this trifling with serious subjects, sufficient to rob any Congress of all claim to be regarded as a scientific reunion. M. Martin has also shown elsewhere why it was the least international of all the previous Hygienic Congresses, and how defective its organisation was in some important particulars.

The section devoted to demography is not so detailed, and is insufficient to be accepted as a *résumé* of the work done in what was termed a division, but was in reality a separate congress. Until the official report of this department is published, it will be premature to attempt to estimate its real value. I have already noticed one cardinal error in its proceedings.

The Indian Meeting.

But there was an annexe of the Hygienic Congress which requires more notice than has yet been accorded to it, as I consider it to have been a questionable experiment, the reasons for which opinion I will explain at length, as it is one of those incautious proposals regarding India which can at best do little good, and might easily become mischievous in the hands of philanthropic faddists. This Indian meeting formed no part of the Hygienic Congress proper, and the resolution moved at its close I hold to be singularly injudicious. It is that, "looking "at the interest shown by India in this congress, and considering "the probability that other tropical countries and colonies would "take a similar interest in future congresses, if a more permanent "position were given to the consideration of subjects in which "they are specially interested, this meeting recommends to the permanent committee, that in future congresses a tropical section be "formed with a view to a more full discussion of questions affecting the sanitation and the origin of disease in tropical climates."

When it is considered that even if such a proposal were of the greatest use, the Hygienic Congresses will, probably for some years to come, be held in foreign capitals, most of which have no interest in India, or any tropical colony, and it would be difficult to get any Indians of rank, wealth, or influence, to attend them, however willing the people themselves might be to receive them, the proposal is so wildly impracticable, that its being carried unanimously, without discussion or consideration, is a type of the strange unwisdom of these quasi scientific gatherings. Moreover, as respects the Indian empire, such questions can be much better considered and discussed in India than in Europe, and in their technical aspects are better fitted for a medical congress than one of such heterogeneous materials as formed the bulk of the recent meeting in London. It should not be forgotten that all proposals to remedy insanitary conditions in native dwellings and households, if attempted to be carried into effect by authority, would of necessity come into injurious conflict with the customs of the country, many of which are ceremonial observances. We have recently heard of the commotion caused by the injudicious and hysterical discussion in this country of the age of consent, and the consequent pressure upon the government of India to take legislative action upon it.

Again, as respects the late congress, every one who has passed the best part of his life in India knows that in the sense implied it is a mere geographical expression, and that no such thing as public opinion exists there, except in the presidency towns, and even in them to a very limited extent. It is therefore open to question to proclaim that India has taken any real interest in the late congress, or that the subscriptions of a few natives of rank and wealth, can rightly be considered to represent such an opinion. The growing practice of appealing to native magnates for subscriptions or donations for objects in this country, in which they neither can nor do take any personal interest, is not unattended with political objections, which it is neither wise nor prudent to raise and encounter.

When I was engaged in raising the subscriptions in India for the Wellington College, a task entrusted to me by the Governor-General, a native ruler offered to send me an extremely munificent donation for that institution. I referred the matter at once to Lord Dalhousie, who informed me that it could not be accepted for political reasons which he explained, as it contained a danger to be carefully avoided, and which he could not permit to arise.

The principles regulating and underlying questions of sanitation, and the origin of diseases in tropical countries, in no way differ in kind and in the manner of their investigation in temperate and tropical climates, as those principles are, when founded upon a strictly scientific basis, universal in their application, and need no sections of even scientific congresses to throw light upon them. A very different procedure is, in my opinion, necessary to create and educate a genuine public feeling in such matters in different parts of India. Educated natives should be largely included in the consideration of all such questions in relation to their collateral issues, and to attempt to bring these all the way from India, even if those fit and worthy to be consulted were willing to come, would be as visionary and costly as it is inexpedient.

And, lastly, to relegate the decision of such a question as the formation of a tropical section to a body which has not a single representative of India upon it, carries with it its own condemnation, and fairly falls within Lord Melbourne's denunciation of meddling with such matters as are best left alone.

It is a mistake to suppose that such questions as appear to have been considered in this section have not secured sufficient attention in India, and even in some sections of this Congress, or that the officers serving in that country are not as well able to consider and advise upon them, as any to be found at home.

So long ago as 1868, when the supervision of public health was first intrusted to a specially selected staff, many officers believed to possess personal knowledge of the subject were consulted by the Government, myself among them, as to the proper functions of a public health department. In my report on the question I stated that I had directed the attention of the Government of Bengal to the subject of the health of towns and districts, and the heavy mortality among pilgrims to Pooree as long before as in 1856. The following extract from my letter on the subject (No. 9878, 1st March, 1856) shows the steps which I then recommended to be taken.

"HEALTH OF TOWNS AND DISTRICTS.—The last topic to which I shall at present advert, is the health of towns and districts, and particularly the reputed large mortality of pilgrims to Juggernauth.

"In many districts which I visited, cholera, fever, dysentery, and similar diseases were raging to a great extent. The apathy and ignorance of the people prevent their taking any measures to protect themselves, and no effort seems to be made by any one else to aid them.

"I cannot help thinking that much good might be done by magistrates, collectors, commissioners, and other officers of local rank and influence, who come into contact with men of rank and possessions in the country, if they would take the trouble of explaining to these people how much they might do, without expense, to assist their less fortunate countrymen in times of sickness and distress.

"The prejudices of the natives are doubtless strong and difficult to remove, and the proverbial disregard of human life and suffering exhibited by all Asiatics, afford unpromising materials of philanthropy; yet, the more difficult the task, and the more impracticable the people, the greater should be the efforts exerted to benefit them, in spite of themselves.

"To employ the agency of the police, or of any of the subordinates attached to civil officers, would be to afford them additional pretexts for oppression and extortion.

"But in my long and intimate intercourse with natives of all classes, I have always found them anxious and willing to listen to the suggestions of European officers, when they did not interfere with their feelings and prejudices.

"A few simple sanitary suggestions printed in the vernacular languages, and put into the hands of the lower classes by the superiors known to and respected by them, would, I have not the smallest doubt, in time exert a large amount of beneficial influence, and probably ultimately succeed in dispelling the gross popular ignorance which is at present universal in all matters relating to health.

"For example, the moment a native [of Bengal] builds a hut, he digs a hole from which he takes the earth to raise the floor of his hut, and from which he obtains the material of its walls. This hole subsequently becomes the receptacle of the remains of food and various other matters, which gradually putrefy and dry up and form a focus of malaria which [in times of epidemics] decimates his household, and renders every one within the reach of its influence unhealthy.

"It would not be difficult to explain this so as to be intelligible to the most ignorant, and to suggest a remedy which in time would be adopted.

"They should be told instead of digging shallow pits to take all the earth they require for a whole village from a single spot, and thus to construct a clean wholesome tank, the blessings and uses of which all are able to appreciate and comprehend.

"Equally simple would it be to show them that weeds and rank vegetation are eminently unwholesome, while trees and well cultivated grounds are the reverse; that stagnant tanks breed pestilence, while pure water is healthy; that disease results from the percolation through the soil to their ill constructed wells of all effete animal and vegetable matters, while the water in wells properly protected by masonry to a sufficient depth is pure and pleasant; that small pox is a pestilence which can be eradicated by a less hazardous means of protection than that afforded by inoculation and yet by one equally little opposed to their religion; that pure air is necessary for health, while the practice of hermetically sealing their huts and smoking themselves in them is the reverse; with a thousand illustrations of a similar kind. They might, and probably would, at first be received with suspicion or indifference, but by being gradually familiarised and constantly urged, would at length become familiar and household words.

"No one should despair of such a result, when we reflect that it took very long to convince the poorer classes in Great Britain that poverty and filth were not necessarily inseparable; that the causes of disease were capable of being removed without interfering with their comforts and liberties; and that by a little care and attention on their own parts the average duration of their lives could be extended, and a thousand sources of physical enjoyment opened out to them of which they were before ignorant, and to which they were therefore indifferent or opposed.

"The revelations of sanitary commissions within the last twenty years show that the labouring classes in England, even in our own times, were in a state of greater discomfort and moral degradation in regard to their personal habits, than the poorest ryots in a Bengali hamlet.

"It may be said that all this is rather the province of the civil surgeon than of the commissioner or collector to urge; and so it is, but the position of the civil surgeon is not such as to enforce attention to his counsels on the part of the native population by whom he is surrounded. He is moreover a fixed and not a locomotive officer, and unfortunately in the majority of instances is new to the country, unacquainted with the language, manners, and habits of the people, and without any inducement to make himself better acquainted with them.

"I observed that some stations which had formerly been healthy, are now the reverse. This is the case with Rajshahye, and has resulted from huts, rank vegetation and similar sources of deterioration having been allowed to arise in the very heart of the place.

"Mozufferpore again, from a change in the course of the river, threatens to become unhealthy; and I doubt if even the rare ability and energy of Dr. Simpson will be able to prevent it, unless his counsels receive the most entire support from the municipal authorities with whom he is associated, and of whom he is a mere appendage, instead of being, in a matter so purely professional, the ruling authority.

"Dinagepore on the other hand, is a good example of what may be done to convert a jungle and a swamp into an abode of health. The energy and successful sanitary exertions of Mr. James Grant, Mr. Lantour [judge and magistrate], and other gentlemen interested in the station have altogether changed its aspect.

"There is still, however, much to be done even in Dinagepore, to render it as healthy as it is capable of being made.

"There is much room in Bengal for a special sanitary commissioner, or public health officer, to aid and advise the local authorities in all questions relating to the public health."

I have reproduced this *in extenso*, because it is a mere sample of what was being done probably by many others who were doubtless consulted, as I was, on inland quarantine, the origin and progress of cholera, and many similar matters connected with public health.

If congresses of hygiene of moderate dimensions, and not possessed of a number of dilettanti members, were assembled from time to time in the great Presidency towns of India, and natives of rank and real influence associated in them with Europeans, lay and medical, far more good will be done, in ways that would not be repugnant to native feeling, than by attempts to attach them to even strictly scientific bodies at home, which cannot be expected to possess, and as a matter of fact are not possessors of, the knowledge of the collateral bearings of all such questions as are likely to come into injurious contact with native feeling in regulating questions of public health in their social bearings.

The International Statistical Institute.

9. The meeting of the International Statistical Institute held at Vienna at the end of September was well attended. Its programme was, as seems to be the normal condition of these gatherings, greatly overcharged, but yet full of matter of interest and value, and its proceedings appeared to be satisfactory to most of those who attended them. It was a noteworthy meeting, as affording lessons for future guidance, but it is impossible to give even the briefest *résumé* of its proceedings, from the absence of the daily bulletins, stating *de die in diem* what had occurred in each section and general assembly, as was customary with the body whose representative and successor it is.

The incident which marks it as an exceptional and noteworthy occasion was the vacation of the Presidentship as required by the Statutes; the selection of Chicago, in the United States, as the next place of meeting; and the election, by acclamation, of the President as an Honorary Member.

As respects the President the honour was well merited, for it would be difficult to over-estimate his devotion to the interests of an Institution committed to his charge at its birth, and continued to the present time, for it had been, as he himself said, with dignity and pathos, a passion with him, and those who know, as many of us do, his untiring attention to its affairs, and his scrupulous courtesy in all his communications regarding it, can fully understand what that signifies. The Institute is no longer in its infancy, and was a tender plant to rear, particularly at a time when international susceptibilities were somewhat strained, and there were shoals and quicksands ahead, which needed a skilful pilot to avoid the rocks which lay in its course to the calm sea, in which alone science can pursue a successful course.

Now that it is well established on a sure foundation, and is practically in its maturity, it seems to me to be desirable to take into consideration the advisability of reconsidering such of the provisions of the statutes as fetter its action, render its extension, should it be deemed expedient, a difficulty, and raise questions which had better be faced before they become possible causes of disunion. There has been recently a ruffle on the surface which it is prudent not to disregard. It was wisely said in one of the earliest references to the statutes formulated in London in 1885, that it was not advisable to make changes in matters of detail unless and until greater experience had been acquired in the working and management of such an Institution, and this sound and sensible counsel has, to a great extent, been judiciously observed. But the experience contemplated has, I think, now been obtained, and the transfer of the meeting of the Institute to the New World is an epoch in its history which affords an eligible opportunity of taking stock of our position. In any case, as the election of new members is effected by correspondence, the views of the members of the Institute can easily be ascertained in the same manner by a circular on the subject.

There is another matter on which I desire to say a few words, viz., the real origin and conception of the Institution, which has not yet been placed on public record, hence the misapprehension which appears to exist regarding it. It is contained in the unpublished records of our Society, and I can supply the missing link, for which I am indeed chiefly responsible. I hold it to be essential that the correct history of all institutions which have a great and important mission to fulfil, should be placed on permanent record during the lives of those who aided in their creation, hence the very brief narrative I am about to present with that view.

When the permanent commission of the late Statistical Congress met in Paris in 1878, it was adjourned to Rome for the next assembling of the congress. I was then authorised by our Council to invite the Members to come to London on the next occasion of its inter-congressional meeting.

In the meantime the congress was put to death, how or why has never been properly made known, and the meeting did not take place.

Some of us thought that it would be a matter of great regret if no means could be discovered to continue the important work of the deceased congress—the child of Quetelet, and the step-son of our distinguished doyen, Dr. Engel.

I was at that time Foreign Secretary of our Society, and had a conference with Mr. Giffen, one of our leading members and secretaries, on the subject, when we agreed that a strictly private International Statistical Association, to consist entirely of statisticians, from which all official and pic-nicing character should be rigorously excluded, would afford the most suitable *modus vivendi* in the circumstances, and I accordingly obtained the sanction of our Council to invite the members of the Permanent Commission to assemble in London, to consider the best means of continuing the work of the late congress as an international institution.

I received replies to the proposal from several. Messrs. De Foville, Tisserand, Poznanski, Collucci Pasha, Kiaer, and Böckh accepted it unconditionally. Signor Bodio pointed out certain difficulties that many members would experience if an official character were not given to the institution, and that was substantially the view of Messrs. Keleti, Yvernès, Siedenbladh, and Körösi. M. Maurice Block did not think that the meeting in London would revive either the permanent commission or the congress, but would attend from the personal interest he took in our Society. Dr. Böhmert, although unable to act until the Imperial Government of Germany had declared its views, was imbued with friendly feelings to the project. All the gentlemen who replied expressed very friendly feelings towards our Society, and believed that the matter could not be in better hands. Some of the most important German members of the late congresses, however, made no sign, nor did M. Séménow. The late lamented Von Neumann Spallart[9] took up the question with great cordiality

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[9] This excellent and most lamented friend of my own, as well as of all who knew him, has stated how the initiative taken by him in 1885 was suggested by the then President of our Statistical Society, Sir Rawson Rawson, as recorded in pp. 2, 3, and 4 of the "Bulletin de l'Institut International de Statistique," tome i, 1ère and 2ème livraison, année 1886.

A more detailed history is contained in our own Jubilee volume, but it of subsequently, and, as we all know, formulated a scheme which, after consideration and amendment, chiefly in eliminating from it all trace of an official character, was adopted at our Jubilee meeting in 1885, and created the institute in its present form. The proposed meeting of the Permanent Commission in London never took place, in consequence of the abstentions, above mentioned, of our German friends, without whom it was felt that no such association could be formed.

All this I reported to our Council, in a communication which it ordered to be entered on its minutes *in extenso*, as the Council concurred in my opinion. This was accordingly done on the 12th of February, 1880, and the proposal was abandoned for the time, especially as M. Keleti stated that he intended to make another effort in the spring to get a Government settlement of the question. The matter, however, slept until our Jubilee meeting in 1885, when Professor von Neumann Spallart revived it in his proposed alternative schemes, of which a detailed report will be found in our Jubilee volume. The Jubilee of our Society presented exactly the occasion required for the entertainment of the proposal, from the numbers of foreign statisticians who attended; and, as soon as I became acquainted with the plan of the learned and much lamented Austrian professor and friend above named, I suppressed my own version, as I considered his to be much superior to it, and as I concurred in its views, with the exception of those points which were amended in committee.

To our Society then is due the real origin of the Institute, and I have now for the first time placed on public record the steps we took in the matter, before it became an accomplished fact. I had intended to have submitted my sketch scheme to the Statistical Society of Paris at its twenty-fifth anniversary, but was in the deepest affliction and in bad health at the time, and consequently unable to attend.

How life was given to it in 1885 is detailed in our Jubilee volume.

The internal economy of the Society in the past session.

10. The most noteworthy events of the past session in the internal economy of the Society were a change in the *personnel* of its paid staff, an improved and different distribution of their duties, the placing of the valuable library in a better position for consultation and reference, and the institution of a Medal to reward original research and work in Statistics, as well as to encourage our younger members to devote themselves to their pursuit. The more prominent part now taken by Economics has been, I am afraid, detrimental to the

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necessity takes no note of what had occurred so long previously, during the Presidentship of the Right Hon. G. Shaw-Lefevre, in 1878 and 1879.

direct cultivation of the methods by which the laws regulating them are established; hence the necessity of such changes in our procedure as will maintain, so far as it is susceptible of sustainment, our position as one of the chief instruments in aiding the determination of all social, economic, political, and scientific questions to which the numerical method is needed for their solution.

The medal is to bear the name of Dr. Guy, as one of our greatest benefactors, as having for several years taken a leading part in our proceedings, as having contributed many papers of value to our transactions, and as having filled most of the offices connected with the control and management of an Institution which he held in high esteem, and which valued him in equal measure.

The medal has been executed by an artist of ability, and is a work of art of great merit.

Conclusion.

11. All this brings me again to the consideration of a question which I raised in the history of the Statistical Society, which I was privileged to write in 1885, and with it I shall conclude my present address. This question was the federation of all the associations devoted to literature, science, and art throughout the British empire. After showing what I then believed and still consider to be the position of the Royal Society in relation to science, and its desire to be more than *primus inter pares* in the representation of science *in excelsis*, I said :—

The Royal Society in its relations to arts, science, and literature.

12. "The true solution of the question seems to me to lie in the "confederation of the different literary, artistic, "and scientific bodies [in the British empire] "in a single institute or academy, leaving to all, chartered and "unchartered, their existing organisations and procedure, their "special methods of research and record, and all the rights and "privileges they at present enjoy, but raising all of sufficient "scientific value and importance to the same level as the Royal "Society itself, the illustrious parent and predecessor of them all, "but no longer the sole arbiter of the intellectual pre-eminence "of the most distinguished members of the branches of art, "science, and literature, and sole fountain of honour for the blue "riband of knowledge, the Fellowship of the Royal Society."

I sketched how I thought this could be done, and believed it to be perfectly practicable to connect in one unbroken chain the glorious traditions of the past, and the hope, vigour, intelligence, culture, and promise of the present, and to be the harbinger of a future, including all parts of the British empire in its embrace, and gathering in its fold all distinguished searchers after truth in the entire domain of human knowledge cultivated by the subjects of Her Most Gracious Majesty, in the Victorian era.

At the end of November in the same year, my paper having been read in the previous June, the distinguished and learned President of the Royal Society noticed the matter in his address to that body. He said that the question had been raised both inside and outside the Society, and therefore required some notice.

He candidly admitted that in some particulars, such as the limitation of the annual elections to 15, by which the members desiring admission were greatly in excess of the number of the elected, and the whole number of members to what the Society was thus restricted, some 480 or 474, was equally below the requirements of the times, and probably excluded some whom the Society would welcome in its ranks had it the power to do so. But he did not consider that any immediate action was required, and very strongly deprecated any change in the principles on which the selections were then made, as likely to become a source of danger to the high standard maintained and necessary to maintain to constitute it *the* representative of science in the British empire, a position which he unhesitatingly claimed for it. That they regard themselves as the elect of science, and are so regarded by others, may be and is true, but in a more restricted sense than is claimed, as shown above. Of this premiss I am not prepared to admit the accuracy, inasmuch as it does not and cannot cover the whole ground, since such important branches of science as astronomy, chemistry, geology, geography, and botany have societies of their own, and two of them at least declined to be associated with the Royal Society in a position subordinate to it, and seceded from it in consequence. Again there are several more recent branches and subdivisions of science which have arisen in the present century which are not properly represented in the Royal Society, unless the occasional election of some man of eminence in any of those sciences can rightly be regarded as a representation in the commonly accepted meaning of that term.

It is not necessary however to consider the objections of the eminent professor further, as he evidently foresees that a change is impending and inevitable. He considers that the Royal Society should be in touch with the whole world of science, and constitute a microcosm answering to that macrocosm. He goes on to say that he directed attention to the matter, not for any immediate action, for he did not consider any present change desirable, but because it was a matter sure to come before them in a practical shape before many anniversaries went by, and whenever the time arrived another problem might possibly offer itself for solution.

This implied the proper recognition of all distinguished workers of science amongst English speaking subjects in every part of the globe, and he added the significant remark, that whatever may be the practicability of political federation, some sort of scientific federation should surely be practicable, as nothing is baser than scientific chauvinism; but blood is thicker than water, and he concluded in terms which induce me to believe that he is at heart himself an advocate of reform.

Professor Huxley's dream.

He added that he had often ventured to dream that the Royal Society might associate itself in some special way with all English speaking men of science, and it might recognise their work in other ways than by electing to foreign fellowships, or awards of medals, which are open to everybody, and without imposing on them the responsibilities of the ordinary fellowship, whilst they must needs be deprived of a large part of its privileges.

This was spoken less than six years ago, and matters are now as they were then, and will be sixty years hence, except that, as time goes on, the difficulty will increase, unless some move in advance to realise Professor Huxley's dream, for which the scientific world, if it desires the change, is as much prepared now as it ever can or will be.

Federation of scientific associations appears to me to be more simple and feasible than political federation. The former is or ought to be passionless, whilst from the latter mere personal feeling and its concomitants, passion, prejudices, indisposition to change, fads of every variety, and the conservative instinct which is so strongly implanted in us as a people, have heretofore been the chief obstacles to union of any kind.

If the autonomy of all scientific institutions of sufficient importance to be associated with the Royal Society on equal terms, is strictly secured, and the limit of admission to the federation is as rigorously fixed, there can scarcely be any reasonable doubt that each branch of knowledge will select only its best and most distinguished representatives for the Senate of Science, and the only real difficulty in the realisation of Professor Huxley's dream be removed.

His realisation.

Why then should not he, the undisputed leader of science, and greatest master of the purity and power of our language, happily still amongst us, take the lead in realising his own dream, and leave behind him, in, it is to be hoped, a distant future, a legacy of peace, goodwill, harmony, and rivalry only in the search for truth, which is the animating spirit of all science, by uniting in one great family the elect of those who pursue it in many paths, in a spirit of reverence and faith?

Our Society has, I venture to think, an indisputable claim to a place in that brotherhood, for in our inquiries, "where passion, "interest, and prejudice do not interfere, the ultimate end must "be some near obtainment of the noblest of all visions—a vision "namely of truth, pure, cloudless, and supreme."[10]

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[10] Newmarch.

Proceedings *on the* 17*th* November, 1891.

Sir Rawson Rawson said, as probably the oldest member present, he had the privilege of proposing a vote of thanks to the President for his very interesting address, in which he had reviewed the transactions of the Society during the past year, in a manner most useful and conducive to the credit of the Society, as showing the proceedings of the Society to have contributed most valuable information to its members and the public, bearing the impress of original and penetrative inquiry, and certainly highly promotive of statistical science and investigation. The President had also looked beyond the mere sphere of the individual Society, and had reviewed the action of other scientific bodies, bringing to many members information which was new, as in these days of active and widespread scientific progress, it was impossible to follow all that was going on in different parts of their own kingdom, much less abroad. It was therefore of great value that the President had brought together a review of the principal meetings of scientific bodies connected with statistics and social economy. They had experienced during the past year all the valuable characteristics of their President—his patience in inquiry, his vigour in prosecuting the pursuit of reform, and his high moral courage in meeting all difficulties, and on most occasions surmounting them. As President of the Council, and as presiding at their meetings, he had shown what a president entering into the spirit of his office could do for the benefit of the Society over which he had the honour to preside. It was neither comely nor expedient that they should enter into a discussion of recommendations made in this annual address. The President brought them forward as his individual views; many would agree heartily with him, and if some might differ they would, nevertheless, bow with respect to the experience that he brought to the discussion of these subjects. They could admire the spirit and courage with which questions fraught with difficulty and liable to a variety of opinions were faced, and hoped that his words would meet the eyes of those whom he no doubt hoped to influence to the advantage, not only of that Society, but of others in the same position as themselves. This had special reference to the suggestion in the address with regard to the Royal Society. The fact that election to the Royal Society was limited to fifteen in the year, and that the selection of persons for that honour was generally confined to rising young men who had distinguished themselves by discoveries or studies in pure science and physics, that that should be the only door by which men of science could become members, looking at the enormous extension of scientific pursuit amongst an ever increasing number of individuals, was a subject deserving notice, and he for one, being perfectly disinterested in the matter, was grateful to the President for having brought it forward. No doubt there would be great differences of opinion. The governing body of the Royal Society had no doubt given deep consideration to the matter, and were influenced by very strong and well considered views. Outsiders might possibly think that their views would admit of revision, and that a larger opening might be afforded to the ambition of men who did not confine their studies to pure science or to physics, which, valuable and important as they were, must allow other sciences influencing the well being of mankind to come into competition with them. That was one of the reasons why he felt grateful to Dr. Mouat for his address. There were many points upon which observation might be made, but this was not the occasion for doing so. He believed he was only expressing the views of the Society, in returning their best thanks to the President for his address, and for his services during the past year.

Mr. Frederick Hendriks said, as one of the Vice-Presidents for the year, he might perhaps be allowed to second this very cordial vote of thanks. The address contained abundant evidence that their President had laboured during a long lifetime not only for the advantage of statistical science, but also for many years for the best interests of this Society. As Sir Rawson Rawson had set an example of making a few casual remarks, although it was not usual to criticise the President's address, he (Mr. Hendriks) might perhaps be excused for also making one or two observations. While entirely agreeing with the President in his very able defence of the claims of the English language as the future language of science as well as of commerce, he must at the same time confess that he did not share with him in regret at its not having been the predominating language at the recent International Statistical Congress at Vienna. Those present in that capital were aware that not only was their President on that occasion (Sir Rawson Rawson) very well acquainted with French, but that all the English members of that Congress, who were also members of this Society, and including Dr. Mouat, Major Craigie, Mr. Bateman, Dr. Ogle, and himself (Mr. Hendriks) were also fairly familiar with that language, and therefore did not suffer very much from the fact of the discussions not being in English. The truth was that in these congresses of the International Statistical Institute there were only three possible languages, English, French, or German. The languages of all other nations must succumb on the occasion of its periodical general meeting. They could not expect that their discussions could be conducted either in Russian, Hungarian, Swedish, Norwegian, or Greek, when the meetings of the Institute take place in a country where one of these languages is the vernacular. More difficult still is anything like adherence to one special language. It is also clear that in any meeting the language of the country where it is held must have a little precedence. In Germany, for instance, the Germans would attend in somewhat greater numbers than the delegates of any other country, and would expect that there should be rather more German spoken than either French or English. In France, or in the countries using languages of Latin race, French would naturally predominate.

And as the next meeting of the International Institute was to be held in Chicago, no doubt English would be in the ascendant. As to the language in which the transactions were published, it must also be borne in mind that the big volumes in which are recorded the proceedings of such congresses were carried to the million, and were really read only by people who were more or less conversant with the three great languages he had mentioned. He therefore did not quite share the disappointment expressed by the President in that respect in an address to which all present had listened with the greatest pleasure.

Mr. Tom Ferrers Guy wished to be allowed to support the resolution, and in doing so to thank Dr. Mouat and the other gentlemen connected with the Royal Statistical Society for the great honour that had been done to his uncle, the late Dr. Guy. It was, he said, an honour greatly appreciated by the whole of the Guy family, and when he made a point of telling his aunt, Mrs. Guy, of the way in which Dr. Mouat had spoken, she would, he knew, be very grateful indeed for the kindness which had been shown to her and the family by Dr. Mouat and by all the members of the Society.

The resolution was carried by acclamation.

The President expressed his thanks for the vote, and the meeting adjourned.

ENUMERATION *and* CLASSIFICATION *of* PAUPERS, *and* STATE PENSIONS *for the* AGED. *By* CHARLES BOOTH, ESQ.

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PART I.

Pauperism at Stepney.

As a study of the class provided for under the Poor Law may be of use in considering what changes, if any, are desirable in this law or its administration, I have made an inquiry into two London unions, the results of which I now lay before the Royal Statistical Society.

The two London unions chosen for this purpose are Stepney and St. Pancras.

Stepney is one of those unions which have practically abolished out relief. At the beginning of April, 1870, there were 1,022 in-door and 3,126 out-door poor, and the yearly expenditure was about 12,600*l.* in-door and 12,300*l.* out-door. In April, 1888, there were 946 in-door and only 26 out-door, and the annual expense was about 10,500*l.* in-door and 500*l.* out-door.

The record of relief from 1876 to 1889 is preserved in books kept by the relieving officers, and to these books I have kindly been allowed access. The system employed is so admirable that it might with advantage be adopted elsewhere. The name and request of every applicant for relief is entered in the relieving officer's journal, and if relief is granted, and sometimes when it is not granted, the particulars of the case are entered in the "record "books." These particulars include the results of inquiries made, and what relief, if any, is given, and the books are so arranged and indexed that all entries referring to the same case are to be found together, and a reference is made to "allied" cases; that is, when other members of the same family have received assistance, "family" being here understood in its larger sense. It will readily be perceived how invaluable a picture of the pauper class is to be found in the pages of these records.

The population of Stepney Union in 1881 was 58,543, and in 1891, 57,599. It is full of waterside poverty, and contains very few inhabitants above the working class level in means.

The institutions belonging to the union in which paupers live are as follow:—

A. Poplar Workhouse (shared by Stepney), for the able bodied.
B. Bromley Workhouse, for the infirm, including aged and any children not at school.
C. Sick Asylum at Bromley (shared by Poplar).
D. District schools (at Sutton in Surrey).

Roman Catholic children are sent to various schools belonging to that community, and the lunatics to various asylums.

There are also a very limited number of out pensioners, and there is some medical out relief.

The numbers receiving relief on 30th April, 1889, were as follow:—

Able bodied (Poplar Workhouse)	53	In-door	1,163
Infirm, aged, &c. (Bromley Workhouse)	504		
Sick	155		
School children	213		
Lunatics	238		
Pensioners	17	Out-door	162[1]
Medical relief	137		
Other "	8		
Total			1,325

For most of these I have the materials of a short history. But before taking up this part of my subject I will complete the enumeration by going back twelve months. There is no absolute reason for choosing this period. A bottle of medicine or the drawing of a tooth in January might not be thought to pauperise for the whole year, while on the other hand to have been brought up in pauper schools may leave a stigma for life, but a year, bringing each season in its turn, is on the whole a convenient basis for estimating the total pauperism, and has been usually accepted.

The following table gives the numbers of fresh admissions to each institution separately, and shows the extent to which these overlap (the same person recurring in various institutions) so as finally to yield the total number of those who at one time or other, or in one way or other, did receive relief in the twelve months from 1st May, 1888, to 30th April, 1889. I show also how many of these poor people died during the year, so as to give finally the actual number of persons living on 30th April, 1889, who had received relief, in-door or out-door, during the preceding twelve months.

[1] Number on 1st January, 1889.

Stepney.—*Number of In-door Poor Relieved during Twelve Months ending 30th April*, 1889.

Institution and Class of Pauper.	Number of Inmates 30th April, 1889.	Number to be added. Gross.	Number to be added. Net.	Total Number counted for Twelve Months.	
Poplar Workhouse, for the able bodied....	53	328	251	304	247 relieved Poplar Workhouse only 134 there and elsewhere also
Bromley Workhouse, for the infirm	504	538	254	758	562 relieved Bromley Workhouse only 480 there and elsewhere also
The sick asylum....	155	711	497	652	509 relieved sick asylum only 357 there and elsewhere also
The district and other schools	213	101	90	303	179 relieved in schools only 135 there and elsewhere also
Lunatic asylums...	238	42	40	278	252 relieved lunatic asylums only 28 there and elsewhere also
	1,163	1,720	1,132	2,295	

In order to arrive at the net number to add, those items of duplicate relief have been omitted which seemed least important, and especially such as are formal only—as the entry of children in the Bromley workhouse on their way to or from school. The difference between the gross and the net figures (588) is rather more than half the cases in which relief was given "elsewhere "also," because in some cases relief was obtained by the same person in three different institutions.

Of the 1,132 who had relief during the year but were not in receipt of relief at the end of it, we know that 130 had died, namely, 5 persons in Poplar, 10 in Bromley, 97 in the sick asylum, and 18 in lunatic asylums. The deduction of these dead from the roll of paupers gives us the final numbers of those who are to be counted in connection with each institution, thus:—

	Number of Inmates on 30th April, 1889.	Net Number to add (less Deaths).	Per Cent. to be added for Twelve Months.	Total.
Poplar (able bodied)	53	246	464 %	299
Bromley (infirm)................	504	244	48 „	748
Sick asylum	155	400	258 „	555
District and other schools	213	90	42 „	303
Lunatic asylums	238	22	9 „	260
	1,163	1,002	86 %	2,165

It should be borne in mind that the apportionment between institution and institution is, owing to overlapping, somewhat arbitrary, but the ratios given above may be taken as approximately true on the whole, and show that here 86 per cent. must be added to the paupers of one day to give the total for the year for in-door cases.

STEPNEY.—*Number of Out-door Poor Relieved during Twelve Months ending Lady-day*, 1889.

Form of Relief.	Number of Persons Relieved on 1st January, 1889.	Number to be added for Year ending Lady-day, 1889. Gross.	Number to be added. Net.	Net Total of Out door Poor.
Pensions	17	3	—	17
Other out relief	8	103	84	92
Medical aid	137	1,491	996	1,133
	162	1,597	1,080	1,242

The "other out relief" includes 76 funerals, which must be deducted, and taking an estimated number of deaths from those in receipt of medical relief (as to whom I have no information) we get the following percentage table:—

	Number Relieved 1st January, 1889.	Net Number to add.	Addition per Cent.	Total.
Pensioners	17	—	—	17
Other out relief	8	8	100%	16
Medical aid	137	900	657 ,,	1,037
	162	908	560%	1,070

Percentages of increase are apt to be misleading when the initial number is small. What may be safely said is that apart from medical orders, out relief does not apply to double the number of one day, whereas medical orders apply to seven times as many as one day's list shows.

Those who were in receipt of relief at the end of the year have many of them been in receipt of relief for a length of time, but, except for these, they, like the others, are a floating population, coming and going, and moving about from institution to institution, and much care has to be taken not to count them more than once It is indeed possible that with all the care taken some few may appear twice, but on the whole the company of the unfortunate or the unworthy who were in receipt of relief from the Stepney Union on the 30th April, 1889, or had been during the twelve months preceding, and were still living, may be summed up again as follows:—

In-door—		
Able bodied	299	
Infirm	748	
Sick	555	
Children	303	
Insane	260	
	——	2,165
Out-door—		
Permanent list (pensioners)	17	
Relief in kind	8	
Medical aid	900	
	——	925
		3,090

What manner of people these are will be shown sufficiently by an analysis of the stories of those (1,163 in all) who were actually in receipt of relief on the 30th April, 1889. In making this analysis I have found that the following are the principal causes of pauperism. To each cause I have affixed a letter for use in tabulation, thus:—

If Principal Cause.		Contributory.	Father or Husband.	Mother or Wife.	Both.
Crime	C	c	c^1	c^2	c^3
Vice	V	v	v^1	v^2	v^3
Drink	D	d	d^1	d^2	d^3
Laziness	L	l	l^1	l^2	l^3
Pauper association	P	p	p^1	p^2	p^3
Heredity	H	h	h^1	h^2	h^3
Mental disease	M	m	m^1	m^2	m^3
Temper (queer)	Q	q	q^1	q^2	q^3
Incapacity	I	i	i^1	i^2	i^3
Early marriage (girl)	G	g	g^1	g^2	g^3
Large family	F	f	—	—	—
Extravagance	E	e	e^1	e^2	e^3
Lack of work (unemployed)	U	u	u^1	u^2	u^3
Trade misfortune	T	t	t^1	t^2	t^3
Restlessness, roving, tramp	R	r	r^1	r^2	r^3
No relations	N	n	—	—	—
Death of husband	W	w	—	—	—
Desertion (abandoned)	A	a	—	—	—
Death of father or mother (orphan)	O	o	o^1	o^2	o^3
Sickness	S	s	s^1	s^2	s^3
Accident	X	x	x^1	x^2	x^3
Ill luck	Y	y	—	—	—
Old age	Z	z	z^1	z^2	z^3

Repetition of letters may be used for recurrence, as Ss recurrent sickness, or Vv habitual immorality.

As a further indication of character when the opposite of a fault is intended, the letter can be circled thus ⓛ for industry, ⓓ for known sobriety or teetotaler.

Any one who may follow me in this attempt to state pauper circumstances in tabular form will find this system very useful. There are few stories that cannot be very forcibly expressed by married condition, age, and three letters, as the following examples will show:—

Martin Rooney	M.	86	I z d	Incapable old man, who drinks.
Patrick Rooney	S.	36	C h d	A criminal, hereditary pauper, and drunkard.
Sarah Truelove	M.	66	D z p	Drunken old woman of pauper associations.
John Curtis	S.	72	X z n	Single old man, without any relations, who has had an accident.
Eliza Green	Ch.	4	$O^1 d^2$	Child whose father is dead and mother drinks.
Mary Carter	W.	59	(dl) S n z	Elderly widow of good character for sobriety and industry, with no relations, and ill.
Eliza Knight	M.	60	(dl) M^1 S	Husband insane. This woman, who is sick, has a good character for sobriety and industry.

The analysis of these Stepney stories is embodied in the following tables, which show the length of time those in each institution had been chargeable there, and separately the ages and civil condition, with the principal and contributory causes of pauperism.

TABLE I.—STEPNEY. *Table showing the Length of Time during which Persons Receiving In-door Relief on* 30*th April*, 1889, *had been in Receipt of Relief at the Institution in which they then were.*

Institution.	Less than 1 Year.		1—2 Years.		2—3 Years.		3—5 Years.		5—10 Years.		10—15 Years.		15—20 Years.		20 and over.		Total.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Together
Poplar Workhouse	21	25	1	—	—	1	3	2	—	—	—	—	—	—	—	—	25	28	53
Bromley Workhouse	155	94	23	18	48	25	46	31	21	15	8	12	4	1	2	1	307	197	504
Sick asylum	71	60	2	2	5	3	3	3	2	1	—	2	—	1	—	—	83	72	155
Schools	37	20	13	6	19	14	33	17	24	27	1	2	—	—	—	—	127	86	213
Lunatic and Imbecile Asylums	15	19	8	1	4	7	9	8	16	22	22	38	13	37	5	14	92	146	238
	299	218	47	27	76	50	94	61	63	65	31	54	17	39	7	15	634	529	1,163
	517		74		126		446												

It will be seen that the moving stream is less in volume than the pool in and out of which it runs, leaving its deposit of those who become fixed. It is remarkable that in every institution those who have been in from two to three years exceed in numbers those who have been in for one to two years. I have no explanation at hand for this peculiar fact. It may be that it is only after two years that the habit of going out for a while ceases to operate with even the most regular.

Table II.—Poplar. (*Able Bodied.*) *Condition and Age.*

	Children.		20—30.		30—40.		40—50.		50—60.		60—70.		Total.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Together
Single	1	1	6	1	2	2	1	1	3	2	—	—	13	7	20
Married	—	—	—	—	1	1	—	1	5	2	1	—	7	4	11
Widowed*	—	—	—	1	—	1	—	4	3	9	2	2	5	17	21
	1	1	6	2	3	4	1	6	11	13	3	2	25	28	53
	24								29						

* Including one deserted wife.

It will be seen that of the able bodied more than half, 29 out of 53, are over 50. Of these 29 we find 8 as to whom drink is given as the principal, and 4 as to whom it is given as a contributory cause; want of work accounts for 4, and incapacity for 3. Mental disease for 2, other illness for 6, and the death of the husband for 3 cases, as well as contributing in 5 more. Of the 24 younger people drink accounts for 2 in the first place, contributing in 7 more; immorality or crime for 7, and laziness for 3.

Table III.—Bromley. *Infirm.*

	Children.		20—50.		50—60.		60—70.		70—80.		80—		Total.		
	M.	F.	M.	F.	M.	F.	M.	F.	M	F.	M.	F.	M.	F.	Together
Single	15*	8	15	11	8	4	15	5	11	4	1	—	65	32	97
Married	—	—	4	1	8	4	49	15	32	7	5	—	98	27	125
Widowed†	—	—	3	2	12	6	43	39	55	49	12	20	124	117	241
	15	8	21	15	28	14	107	59	98	60	18	20	287	176	463
Cases of over 13 years' standing.‡	—	—	3	2	3	1	5	6	6	4	3	8	20	21	41
	15	8	24	17	31	15	112	65	104	64	21	28	307	197	504
	110						394								

* Two of these are young people, 15—20. † Including two deserted wives.
‡ Of which we have no record as to condition.

It will be seen that there are 394 above 60 out of a total of 504; of these 373 are returned as over 65.

Amongst the 362 of these old people of whom we have records, 35 are mentioned as owing their pauperism to drink as the principal cause, with 48 more cases in which drink is mentioned as contributing. Illness, including accidents, accounts for 66. Incapacity or temper for 8, and lack of work for 13. Old age is given as the principal cause for 187, and as contributing in 91 more. As a principal cause it is combined with drink, sickness, want of work, and lack of those who might support them. It stands without qualification in 27 cases.

TABLE IV.—*Sick Asylum.*

	Children.		20—50.		50—60.		60—70.		70—80.		80—		Total.		
	M.	F.	M	F.	M.	F.	M.	F.	M.	F.	M.	F	M.	F.	Together.
Single	9	7	29	5	7	2	—	2	—	2	—	—	45	18	63
Married	—	—	9	10	8	3	5	6	3	1	1	—	26	20	46
Widowed*	—	—	4	3	3	5	3	10	1	10	1	6	12	34	46
	9	7	42	18	18	10	8	18	4	13	2	6	83	72	155
	16		60		79										

* Including one deserted wife.

Out of these 155 cases, drink is given as the principal cause of pauperism in 19, and as contributing in 15 more.

TABLE V.—*Children at School, divided for Sex and Age.*

Under 5.		5—10.		10—15.		15 and Over.		Total.		
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Together.
4	2	34	34	80	45	9	5	127	86	213

The causes of their pauperism are given below:—

	Number.	Per Cent.	
Death of father	105	49·3	Combined with drink in 39 cases, immorality and laziness in 2 cases
,, mother	8	3·8	Combined with insanity in 4 cases
,, father and mother....	19	8·9	The only cause in 14 cases; combined with immorality in 3 cases
Desertion of mother	16	7·5	Combined with drink in 8 cases, immorality in 5 cases
Insanity or imbecility of father	6	2·8	
Illness of father (accident) ...	22	10·3	Combined with drink in 2 cases, and trade misfortune in 4 cases
,, mother	2	0·9	
Incapacity .... Lack of work .... Trade misfortune Old age .... } of father	12	5·6	
Immorality .... Laziness .... Pauper association } of father or mother	7	3·3	Combined with drink in 5 cases
Drink, father	8	3·8	Combined with laziness in 3 cases
,, mother	1	0·5	
,, father and mother........	7	3·3	Combined with laziness and immorality in 3 cases, and with mental disease in 2 cases
	213	100·0	

TABLE VI.—STEPNEY. *In-door Cases. General Statement of Ages, &c. (Omitting Lunatics).*

Condition.	Children.		15—20.		20—40.		40—50.		50—60.		60—70.		70—80.		80—		Total.		
	M.	F.	M.	F.	M.	F.	M	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Together
Single	140	95	11	7	38	10	16	10	18	8	15	7	1	6	11	—	250	143	393
Married	—	—	—	—	6	8	8	5	21	9	55	21	35	8	6	—	131	51	182
Widowed*	—	—	—	—	3	4	3	8	18	20	48	51	56	59	13	26	141	168	309
Old cases†	—	—	—	—	1	—	2	2	3	1	5	6	6	4	3	8	20	21	41
Total	140	95	11	7	48	22	29	25	60	38	123	85	108	77	23	34	542	383	925
	235		240								450								

* Including four deserted wives.

† These date back beyond our recorded information, age and sex only being known.

The large proportion of old people is very noticeable. It may be interesting to note in connection with this table the relation which four of the principal causes of pauperism, viz., drink, sickness, accident, and lack of work, bear to age, sex, and civil condition.

Table showing connection between certain Causes of Pauperism and Age, Sex, and Civil Condition.

Cause.	Males.									Females.									Grand Total.
	Under 60.				Over 60.				Total Males	Under 60.				Over 60.				Total Females	
	S.	M.	W.	Total.	S.	M.	W.	Total.		S.	M.	W.	Total.	S.	M.	W.	Total.		
Drink	8	10	2	20	2	21	10	33	53	1	6	8	15	2	5	5	12	27	80
Sickness........	38	15	12	65	2	16	15	33	98	10	12	10	32	5	3	31	39	71	169
Accident	4	2	4	10	3	4	8	15	25	—	—	1	1	—	1	3	4	5	30
Lack of work	1	2	3	6	1	8	11	20	26	—	—	—	—	—	1	1	2	2	28
	51	29	21	101	8	49	44	101	202	11	18	19	48	7	10	40	57	105	307

It will be seen from this table that an extraordinary proportion of those who suffer because of drinking habits are or have been married. It is not to be supposed that the married drink much more than the single, but it may be taken that it is in connection with the responsibilities of married life that the consequences of drink are fatal. Single people, if they indulge, may do so with comparative impunity. On the other hand, a large proportion of the sick are single or widowed, having, I suppose, no home care. Accidents apply principally to men, but are fairly distributed between young and old, married and not. Lack of work applies chiefly to elderly men, married or widowers.

Principal Causes of Pauperism at Stepney (by Institutions).

Principal or Obvious Causes.		Poplar, Able Bodied.		Bromley, Infirm.		Sick Asylum.		Summary.			Per Cent.	Contributory Causes.			
		Number	Per Cent.	Number	Per Cent.	Number.	Per Cent.	Males.	Females.	Total.		Drink.	Pauper Association and Heredity.	Sickness.	Old Age
												(d.)	(p) (h.)	(s.) (x.) (m.)	(z)
Drink	D	10	19·6	50	11·3	20	14·2	53	27	80	12·6	—	23	11	11
Immorality	V	7	13·7	5	1·1	4	2·9	6	10	16	2·5	3	3	3	1
Laziness	L	3	5·8	6	1·4	3	2·1	10	2	12	1·9	6	5	1	3
Pauper association and heredity........	P & H	1	2·0	4	0·9	2	1·4	6	1	7	1·1	1	—	2	2
Incapacity, temper, &c.	I & Q	5	9·8	19	4·3	—	—	17	7	24	3·8	4	5	2	6
Extravagance	E	—	—	8	1·8	—	—	7	1	8	1·3	4	2	—	3
Lack of work, or trade misfortune	U	5	9·8	23	5·2	—	—	26	2	28	4·4	4	—	5	13
Accident	X	—	—	25	5·7	5	3·5	25	5	30	4·7	4	2	1	14
Death of husband	W	4	7·9	20	4·5	2	1·4	—	26	26	4·1	3	2	10	8
Desertion	A	1	2·0	2	0·5	—	—	—	3	3	0·5	3	—	1	1
Mental derangement	M	3	5·8	7	1·6	1	0·7	3	8	11	1·7	1	2	—	2
Sickness	S	8	15·7	76	17·2	85	60·3	98	71	169	26·7	21	38	5	41
Old age	Z	—	—	192	43·4	16	11·4	113	95	208	32·8	22	18	44	—
Other causes........................		4	7·9	5	1·1	3	2·1	9	3	12	1·9	6	6	2	2
		51	100·0	442	100·0	141	100·0	373	261	634	100·0	85	106	87	107
Children		2	—	21	—	13	—	22	14	36	—	—	—	—	—
Old cases, no record		—	—	41	—	1	—	20	22	42	—	—	—	—	—
		53	—	504	—	155	—	415	297	712	—	—	—	—	—

The foregoing table will bear study as containing much in small compass. It will be seen that drink with a capital D stands for only 80 out of 634 cases, or 12·6 per cent., whilst as contributory it appears in 85 more, chiefly in connection with sickness and old age as principal cause. Altogether 25 per cent. are returned as affected by drink. This proportion is less than might have been expected, and it is possible that closer research into the circumstances and history of these people, if it could be made, might disclose a greater connection than here appears between pauperism and the public house. It is however noteworthy that the results shown agree on the whole with those of the two inquiries I have myself made previously into apparent causes of poverty. The first, regarding 4,000 cases of poverty known by certain of the school board visitors, gave 13 and 14 per cent. as due to drink, the higher percentage being for the greater degree of poverty. The second, regarding about 5,000 people living poor and irregular lives, showed 10 and 11 per cent., dropping to only 5 per cent. for about another 3,000 who, though poor, were more regularly employed; the information in this case coming from district visitors connected with religious organisations. The relieving officers, school board and district visitors, are all of them in daily contact with the people, and their various reports, in so far as they agree, make a strong force of evidence. That from 10 to 14 per cent. of poverty and pauperism should be directly connected with drink, and that perhaps as much more may be indirectly connected with it, is serious enough, although it is much less than has been asserted by the advocates of prohibition. I should say here that the analysis of poverty at St. Pancras, shortly to be given, shows a higher percentage, and should be taken into account.[2]

It will be seen that pauper association and heredity, while only accounting as principal cause for 7 cases, appear as contributory in no less than 106 cases. Incapacity and lack of work together account for 52 cases, or 8 per cent. of the whole. Accidents for 30 cases more. The large proportion of accidents, as well as the numerous out of work cases, are probably connected with risks and uncertainties of water side employment. Sickness accounts as principal cause for 169 cases, and old age for 208, whilst the latter contributes in 107 other cases. Sickness and old age are causes so overwhelming and obvious, as to draw a curtain over what has gone before; behind that curtain we doubtless might find some whose previous life offered another explanation of their condition.

In weighing the value of the evidence on which the foregoing tables are based, it is to be remembered that it was none of it taken *ad hoc*, but was collected and noted down as a matter of business by those who had to report on each case for the guidance of the guardians in the administration of the law. I, however, do not wish to lay too much stress on the results shown, as the basis is insufficiently wide for safe generalisation, and I give these tables, and those which follow concerning St. Pancras, rather as types to show the use that might be made of such information if obtained on a larger scale, than as themselves of much conclusive value. On the whole the results obtained at St. Pancras support those shown at Stepney.

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[2] Mr. McDougall, as the result of a searching inquiry into 254 cases at Manchester, gives 52 per cent. as the proportion of drink cases.

PART II.

Pauperism at St. Pancras.

In St. Pancras Union there is no systematic record of cases such as has been kept at Stepney, but from the personal knowledge possessed by the relieving officers of those in receipt of relief, and by obtaining an accurate account of the movements from institution to institution, and in and out, from the registers, I have been able to work out a parallel statement, which, though somewhat less complete, is yet of considerable value.

The time of investigation was December, 1889, and the numbers in receipt of relief were as follow, as recorded in the official returns for week ending 21st December :—[3]

	Work-house.	St. Anne's Home, Streatham.	Infir-mary.	Imbe-cile Asylum.	Lunatic Asylum.	Other Places.	Leaves-den Schools.	Other Schools.	Boarded Out.	Total.*
In-door	1,814	340	504	772	477	69	602	178	152	4,908
Out-door	916 families, consisting of 1,713 individuals, and 92 wayfarers were relieved. (This does not include cases which had medical orders only.)									

* Seventy-five hospital (fever) cases omitted.

At Stepney, to find the actual number of persons relieved in twelve months, I worked back, including with those in receipt of relief on 30th April, 1889, all others who had been relieved during the preceding twelve months. At St. Pancras it was more convenient to work forward, and so to those in receipt of relief on 1st January, 1890, the names have been added of all others who received relief during any part of 1890.

The plan adopted was the somewhat laborious one of noting down in alphabetical order the name and age of every person to whom relief was granted in each institution, and then striking off all except the first entry of any individual. Several persons appear and re-appear more than thirty times, and in one case the record extends to forty-eight entries; in all there are 4,000 readmissions. This multiplication of apparent numbers, though partly due to the system by which any transfer from one institution to another involves a fresh entry, reflects to a large extent the restless habits of many of the paupers, who obtain a species of liberty by claiming discharge and readmission as often or nearly as often as the law permits. The method of inquiry adopted will thus be found to throw some light upon the character as well as true volume of existing pauperism. The numbers that must be added to the total at the end of December, 1890, to cover the pauperism of a whole year are shown in the following table. Each institution is taken separately and the overlapping allowed for:—

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[3] Population 1881, 236,208. 1891, 234,437.

St. Pancras.—*Number of In-door Poor Relieved during Twelve Months ending* 31*st December*, 1890.

Institution and Class of Pauper.	On 1st January, 1890.	Gross Number to add.	Net Number to add.	Total for Twelve Months.
Workhouse (able bodied) …………… St. Anne's Home (able bodied)………	2,164	4,425	2,431	4,595
Infirmary ……………………………	579	2,029	1,197	1,776
District schools ……………………	602	355	355	957
Asylums (imbecile) …………………	768	185	185	953
Other asylums (insane) ……………	473	160	160	633
Hospitals, &c. ………………………	68	56	56	124
Certified schools ……………………	179	64	64	243
Children boarded out ………………	155	9	9	164
Non-resident paupers ………………	69	33	33	102
	5,057	7,316	4,490	9,547

The division of the net number to add amongst the various overlapping institutions is somewhat arbitrary—the total is correct, or nearly so.

The deaths which occurred amongst these people during the twelve months reduce their numbers by 841 in all, viz., 358 in the workhouse, 309 in the infirmary, and 174 in asylums. So that the total number of persons living on 31st December who had obtained relief during the twelve months was 8,706, or 3.649 more than were counted on 1st January, being an addition of 70 per cent. on all classes of in-door paupers together.

The particulars obtained at the outset were not confined to those in the workhouse on 1st January, but included all relieved there during December, or 2,188 persons. Of these 101 were discharged and re-entered during December.

631 were admitted before 1st January, 1888.
520 ,, between 1st January, 1888, and 1st June, 1889 (seventeen months).
529 were admitted between 1st June, 1889, and 1st December, 1889 (six months).
609 were admitted during December.

2,289
101[4] duplicates who were discharged and re-admitted in December.

2,188 actual number of persons relieved during December.

Some further analysis is necessary. Of the 631, who may be called "old stagers," having been admitted two years before, I can say nothing more; the cause of their poverty had passed out of recollection. Of the rest we learn something from the manner and date of their admission, as is shown in the subjoined table:—

Manner of Admission.	Date of Admission.		Total.
	1st January, 1888, to 31st May, 1889.	1st June, 1889, to 31st December, 1889.	
By order of master	165	203	368
,, relieving officer	336	642	978
At the gate, from police courts, &c.	14	44	58
Born in workhouse	5	28	33
Children with parents or from school	—	120	120
	520	1,037	1,557

The 368 admitted by order of master, being usually transferred from the infirmary or other institution, may most of them be added to the 631 of "old stagers," making 999 in all of those whose story dates back beyond our ken—nor had we any information about those who were admitted at the gate, nor of those families whose children are here counted separately. The children from school are most of them entered and discharged the same day, their parents being outside. As to those unlucky enough to be born in the workhouse, nothing more need be said; they do not usually stay in, for we see that while 28 remain of those born in seven months, ending on the 31st December, only 5 remain of those born in seventeen months before.

It is, finally, to those admitted by the relieving officer that our detailed particulars appertain. They are divided as above into two parts by the summer of 1889. The line drawn is not so arbitrary as may at first sight appear. In June, July, and August, there is a very marked exodus of otherwise permanent paupers, who leave the workhouse for the fruit, pea, and hop-picking season, or take advantage of warmer weather to seek work or pleasure, or, at any rate, variety outside. All who can, get out for a while, and those who do not do so, may be counted for practical purposes as permanent paupers. Of such we have 336 to describe. The remaining 642, being those relieved in December who were admitted after 1st June, are really composed of four different classes. (1.) Those (comparatively few) whom the lapse of another year will prove to be permanent.[5] (2.) Those (a considerable number) who divide their lives pretty regularly between the workhouse and the world outside, coming in for the winter or when work fails. (3.) The regular "ins and outs," to whom we have already referred, and of whom we shall have more to say, and finally (4.) Cases whose relief is genuinely of a temporary character.

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[4] These should be deducted mostly from the 609 December cases, but a few would be re-entries from the 529 cases of six months previous.

The figures given so far are all taken from the St. Pancras "creed" register, verified by reference to the admission and discharge book. The table of causes of pauperism which now follows is based on the answers given by the relieving officers to questions put as to the previous history of the inmates admitted by their order between 1st June, 1888, and 31st December, 1889. In some cases they were, as might well be supposed, unable to give any information whatever as to inmates admitted long before. In the case of persons who, when they applied, had been but a short time in the district, they had sometimes not been able to ascertain even the facts needed, with a view to discovering relatives who might be liable for their support. Again, the information is often very meagre with regard to those who are admitted at once on account of illness, as the relieving officer will naturally dispense with the searching questions asked of those who seek admittance on the ground of destitution. It must be said, on the whole, that our knowledge does not go much beyond proximate causes, and that the original causes in the case of the aged and sick are frequently not given. Subject to this necessary proviso, the table attempts to show the part played by drink, immorality, laziness, mental derangement, desertion, illness, and old age, in producing this mass of pauperism.

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[5] Of the 1,037 relieved in December who were admitted between 1st June and the end of the year (1,138, less 101 duplicates), we know that 249 were re-discharged in December, leaving 788 in the house on 1st January, and these took their discharges as follow:—

In January	257	Brought forward....	578
,, February	67	In September	3
,, March	95	,, October	7
,, April	54	,, November	13
,, May	44	,, December	3
,, June	30		
,, July	9		604
,, August	22	Left in the house	184
Carried forward....	578		788

From which it seems that of 1,037 current cases only about one-sixth remain continually, and are still in the house after twelve months.

Causes of Pauperism—St. Pancras Workhouse.

Principal or Obvious Causes.	Permanent Paupers.		Current Cases.		Ins and Outs.		Total.				Number of Cases in which the undernoted are contributory.			
	Number	Per Cent.	Number.	Per Cent.	Number	Per Cent.	Male.	Female.	Total.	Per Cent.	Drink.	Pauper Association.	Sickness.	Old Age.
											(d.)	(p. and h.)	(s.) (x.) (m.)	(z.)
Drink D	40	17·2	93	21·2	28	43·0	88	73	161	21·9	—	11	26	5
Immorality V	8	3·5	36	8·2	7	10·8	1	50	51	6·9	10	5	2	1
Laziness L	13	5·6	40	9·1	25	38·5	58	20	78	10·6	22	19	3	—
Pauper association and heredity P&H	4	1·7	7	1·6	2	3·1	6	7	13	1·8	1	—	2	—
Incapacity, temper, &c. I & Q	5	2·2	11	2·5	2	3·1	6	12	18	2·4	—	3	1	2
Extravagance E	3	1·3	—	—	—	—	2	1	3	0·4	—	—	1	1
Lack of work or trade misfortune U	1	0·4	15	3·4	—	—	7	9	16	2·2	1	—	1	1
Accident X	9	3·9	10	2·3	—	—	13	6	19	2·6	4	—	—	2
Death of husband W	1	0·4	2	0·5	—	—	—	3	3	0·4	—	—	—	2
Desertion A	7	3·0	11	2·5	—	—	1	17	18	2·4	—	—	4	—
Mental derangement M	7	3·0	24	5·5	1	1·5	11	21	32	4·3	1	3	1	7
Sickness S	44	19·0	108	24·6	—	—	90	62	152	20·7	3	3	7	25
Old age Z	90	38·8	82	18·6	—	—	46	126	172	23·4	4	—	9	—
Addition	232	100·0	439	100·0	65	100·0	329	407	736	100·0	46	44	57	46
Old cases	9	—	22	—	—	—	—	—	31	—	—	—	—	—
New comers, tramps, &c.	46	—	23	—	—	—	—	—	69	—	—	—	—	—
Children	5	—	52	—	—	—	—	—	57	—	—	—	—	—
No information	41	—	41	—	—	—	—	—	85	—	—	—	—	—
Total	336	—	577	—	65	—	—	—	978	—	—	—	—	—

Note.—Of the sick 29, and of the old 58, are marked as of known good character for industry, sobriety, or thrift.

The plan of marking each case with a capital letter to denote principal, and small letters to denote secondary causes of pauperism, has been adopted with these as with Stepney cases. But in making any comparison with the Stepney figures, it must be remembered that while our information at Stepney covers the infirm and sick as well as the able bodied, and all except quite a few old cases, the St. Pancras particulars are only for the workhouse itself, and omit 1,000 of the older cases there as being "old stagers," about whom we could gather no information.

It will be seen that drink, sickness, and old age stand about on an equality both as principal and subsidiary causes, differing from the Stepney figures, in which drink is much less prominent. The part which drink plays amongst the more permanent paupers is less than amongst the current cases, and very much less than with the "ins and outs," of whom over 40 per cent. are marked with big D, and if we had particulars of the 1,000 old cases, and of the 600 inmates of the infirmary, it is certain that the proportion of those with whom drink is the principal cause of pauperism would be less than 20 per cent., very possibly not more than 15 per cent.

That the current cases should be more drunken and immoral than the permanent ones is so probable as to require little proof, and amongst them the "ins and outs" are naturally the worst. One-sixth of the number (see note p. 614) may become permanent, others, after receiving help, do not recur, but the majority are regular customers seeking shelter at least once a year.

Mental disease accounts for more amongst current cases than amongst the permanent, simply because such cases after a while pass into the imbecile or lunatic asylums; similarly, sickness bears a greater proportion as a cause of current than of permanent pauperism, because those who are ill pass on into the infirmary. Miscellaneous causes affect the permanent as much as the current cases, and old age adjusts the balance, accounting as it seems for 38 per cent. in the permanent as against 18 per cent. in the current cases, and passing out of count altogether in the "ins and outs."

The "Ins and Outs."—This class consists of those who, while spending most of their time in the workhouse, are in the habit of constantly re-visiting their acquaintances outside. It does not include those who, under stress of want, are in the habit of occasionally revisiting the workhouse.

The inmates of any poor house are usually allowed a day out from time to time. This is at the pleasure of the guardians, and those who receive permission may be seen in the streets in their workhouse dress. It is not this privilege, nor yet any abuse of it, that is enjoyed by the "ins and outs." They leave the workhouse simply because they have a right to do so when they please, and re-enter (very often on the same day) because the law allows it. Relief in the house is a right, and the house is no prison. There is however some check on this; a man cannot quite use the workhouse as a free shelter. He may discharge himself at any time on giving notice of his intention, but in accordance with the Act of 1871 the guardians may direct that the discharge shall not be till twenty-four hours after notice has been given, and this period may be extended to forty-eight hours if the pauper has already discharged himself in the same calendar month, and to seventy-two hours if he has done so more than twice in the last two months. Of these curtailed privileges very extended use is made.

I have noted particularly the in and out movements in May and in December, and of the 65 members of this class who had relief some time in December, we find 30 who took their discharge at least twice in one or other month. Here they are:—

Laura P.	Age 27.	Admitted and discharged three times in each month.
Lucy C.	,, 39.	Not relieved in May; in and out five times in December.
Charles K.	,, 38.	Not relieved in May; in and out three times in December.
Elizabeth I........	,, 30.	Once in May and twice in December.
Maria P.............	,, 72.	Five times in May and once in December.
Margaret S.	,, 40.	Four times in May; admitted three times and discharged twice in December.
Ann B.	,, 52.	Not relieved in May; three times in December.
Edward B.	,, 21.	Not relieved in May; admitted three times and discharged twice in December.
Frederick B.	,, 18.	Not relieved in May; four times in and out in December.

(These three are one family, Ann being the mother; the boys have been chargeable in and out since they were 4 or 5 years old. The relatives are all a bad lot.)

Emily C.............	Age 31.	Three times in May; once in December.
Arthur F.	,, 45.	Not in May; four times in December.
John G.	,, 19.	Not in May; three times in December.
George G.	,, 36.	Not in May; three times in and twice out in December.
Edward H.........	,, 49.	Not in May; three times in and twice out in December.
Emily H.	,, 38.	Six times in May and six times in December.

(This woman's restlessness of habit was the precursor of insanity; she is now in the asylum for lunatics.)

Jane H.	Age 49.	Three times in and out in May; four times in and three out in December.
James H.	,, 52.	Not in May; three times in and out in December.
Hannah I.	,, 41.	Not in May; three times in and twice out in December.

Joanna M.	Age	34.	Not in May; twice in and out in December.
Frederick P.	,,	21.	Not in May; three times in and out in December.
Edward R.	,,	51.	Not in May; three times in and twice out in December.
Caroline R.........	,,	64.	Once in and out in May; twice in and out in December.
William S.	,,	47.	Not in May; four times in and three times out in December.
Isabella T.	,,	34.	Not in May; five times in and four times out in December.
George T.	,,	29.	Not in May; four times in and four times out in December.
William W........	,,	47.	Not in May; four times in and three times out in December.
Robert W.	,,	53.	Not in May; five times in and four times out in December.
Ellen C.	,,	36.	Twice in and out in May; three times in and twice out in December.
Ellen K.	,,	23.	Not in May; four times in and three times out in December.
John K.	,,	40.	Not in May; three times in and three times out in December.

It is hardly necessary to dwell in detail on the characters of these people. We have seen that drink, immorality, laziness and pauper associations, or heredity, are the evident causes of their condition; of the whole 65, no less than 42 are marked with big or little D. for drink, 20 with big or little V. for immorality, 31 with big or little L. for laziness, while 14 bear H. or P. for heredity or pauper associations.

Out Relief.—At St. Pancras I have so far considered in-door relief only, except that the number of out cases has been given for the week ending 21st December, 1889, viz., 916 families (or cases), consisting of 1,713 individuals.

For Ward VI, the poorest in the parish, and indeed in North London, I have the following particulars:—Relief here was given in December to 143 permanent and 66 temporary cases, and the whole number relieved for the year ending October, 1890, was 165 permanent and 456 temporary cases. It will be seen that the increase of numbers for the year is only 15 per cent. in the permanent cases, but is sevenfold in the temporary ones.[6]

The cost of the permanent relief for six months ending March, 1890, was 523*l.*, or (assuming a similar amount for the second half year) 7*l.* 6*s.* 4*d.* per case on the average. The cost of temporary relief for the whole year was 201*l.*, or an average of 8*s.* 10*d.* a head.

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[6] I do not know to what extent these cases overlap those in which in-door relief was given.

Of the 143 permanent cases in December, there were :—

Widows.	Widowers.	Single Women.	Single Men.	Married.	
112	6	6	6	13	= 143

and their ages are given :—

65 and upwards.	60—65.	55—60.	Under 55.	
122	8	2	11	= 143

The average age of those over 65 was 75·2.

All those permanently assisted were of good character. Of the 11 under 55, 9 were blind, crippled, deformed, or epileptic, one had a husband in the lunatic asylum, and one was a widow with children.

Of the 66 temporary cases relieved in December, 1889, there were :—

Married.	Widows.	Widower.	Single.	
50	13	1	2	= 66

representing 95 adults and 263 children, or 358 persons in all. Of these 66 cases half were reported on favourably. Sickness[7] (including accidents) accounted for 18, old age for 8, and want of employment for 3; while crime on part of the husband, illness of children, mental derangement, widowhood and illness in a large family account for 1 each. As to the remainder, want of work is the ostensible ground for relief in nearly every case, but drink is reported as the principal cause in 21 cases, or one-third of the whole. Laziness proved by shamming paralysis was given as the sole cause in one case. Early marriage sufficiently explained the difficulties of a carpenter aged 19, whose wife aged 18 had just been confined. One woman, living apart from her husband and ill, received an allowance, and the rest were cases of sickness of which, as they were new comers, the relieving officer knew little, except one, the circumstances of which were to some extent an instance of depauperisation. The man, aged 48, was brought up in the workhouse, and five years ago married a woman who was also reared in the institution, and who had two illegitimate children, both now grown up. One of these, a son, is still in and out of the workhouse, and the other, a daughter, has been lost sight of. For some time now this pair of married paupers have been getting along outside, and doing as well as could be expected with a little assistance.

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[7] Sickness includes frequently the illness of children. The influenza may have had some effect in December, 1889.

[The foregoing particulars were collected at Stepney by Mr. George E. Arkell, and at St. Pancras by Miss C. E. Collet, to whose patient work, and the kind co-operation of the relieving officers, is due the success of the investigation]

Part III.

Statistics of Pauperism.

While bringing the results of these investigations before this Society, I wish to urge the desirability of such changes being made in the methods of official tabulation as shall cause the returns to show, more accurately than they now do, the whole volume of pauperism and something of its character.

In former times a return was made to the Local Government Board from each union, giving the total number of persons relieved from Lady Day to Michaelmas, and Michaelmas to Lady Day, in connection with the numbers actually receiving relief on 1st January and 1st July. For some years past these returns have not been demanded, and for many years earlier no use was made of them. There is a great possibility of error in such returns, as the strictest care is necessary to avoid a duplication of entries, which will have the effect of making the volume of pauperism appear much larger than it actually is; and we may assume that no use was made of these figures because of the probability of error in them. In basing their returns solely on the number of those in receipt of relief at any one time, it must be admitted that the Local Government Board stands on firm ground. To go further than this without running into error involves many difficulties; but I venture to think that these difficulties can be overcome, and it is the more necessary that they should be faced, because for lack of reliable official data very misleading estimates have been made as to the total amount of pauperism indicated by the published figures.

It has been usual to say that the pauperism of the day must be multiplied three or three-and-a-half times to give the pauperism of the year. Mr. Mulhall, in his "Dictionary of Statistics," comparing English with continental pauperism, says that the actual number on one day may be taken as one-third of the whole. He gives no authority, but may perhaps lean upon some figures published by Mr. Pashley when writing on pauperism and poor law. Mr. Pashley relied upon information not of a very complete or convincing character, privately obtained from certain unions in 1851. Then again Mr. Dudley Baxter, writing on "The "National Income," gives the ratio of $3\frac{1}{2}$, and says he obtained the figures from which this ratio is deduced from Mr. Purdy, of the Statistical Department of the Local Government Board, the return applying to 1857, and being, Mr. Baxter says, the only one of the kind ever made.

On Mr. Baxter's authority, a multiplier of $3\frac{1}{2}$ has been generally accepted, and has been used with confidence by Canon Blackley, Mr. Sydney Webb, and others, when discussing schemes of poor law reform or State pensions.

The full figures given by Mr. Baxter are as follows:—

Paupers, in-door and out-door, relieved during the half year ending Michaelmas, 1856	1,845,782
Paupers, in-door and out-door, relieved only on 1st July	796,102
" " " during the half year ending Lady Day, 1857	1,934,286
Paupers, in-door and out-door, relieved only on 1st January	800,000

Mr. Baxter adds together the two half year's totals, and from the result (3,780,068) deducts a number (800,000) to represent those in receipt of relief on Michaelmas Day, 1856, who may be supposed to be carried forward and so repeated in the second half year's total. The total number then appears as 2,980,000, or fully three-and-a-half times 800,000.

This calculation would doubtless be true if the first half year's total included no duplicate entries of the same pauper, and further if no paupers received relief in the second half year who had been relieved in the previous six months, but who were not amongst those actually in receipt of relief on Michaelmas Day. Neither supposition is tenable. No record of Mr. Purdy's inquiry exists at the Local Government Board, and Mr. Purdy himself is dead. We have only the frank admission on the part of Mr. Baxter that Mr. Purdy considered that a greater reduction ought to be made; but Mr. Baxter says, "I am unable to see how this can be," and merely notes the fact. It may be that Mr. Purdy doubted the perfect accuracy of the half year's total, and he was probably aware that many of those relieved and discharged in the first six months, might again receive relief in the second six months.

The figures, if they were in themselves correct, would show that the paupers counted for six months were, thirty-five years ago, rather less than two-and-a-half times the number on one day. It is probable that this was then and would be now an exaggeration. They do not in any way indicate to what extent this ratio should be increased to give the pauperism of a year.

I do not know how it may be with other unions, but at bot Stepney and St. Pancras the officials have never discontinue making up half-yearly returns in the old way, and by the kindness of the guardians I have had access to the books in which these returns are preserved.

At St. Pancras I understand no attempt has been made to strike off duplicates due to those who pass from institution to institution, and the figures are an example of the kind of error which may be expected to creep in with large unions of complicated administration. The six months' total given officially we find amounts to nearly as large a number as can be counted correctly in the whole year.

At Stepney the workhouse system is more simple, and exceptional care appears to have been taken to avoid duplication; the figures may therefore be fairly accepted as correct, and, compared with the true twelve months' totals, show that with the in-door poor the numbers for the half year must be increased by 17 per cent., for the ordinary out-door by 24 per cent., and for the medical cases by 75 per cent., or on the average an increase of 31 per cent., whereas Mr. Baxter's assumption involves an increase of over 61 per cent.

The following table shows the various ratios in detail, comparing the figures at Stepney in 1889, for one day, for six months, and for twelve months:—

	Official Figures.			Special Inquiry.			Ratios.	
	Mean Day.	Six Months.	Per Cent. of Addition.	On 30th April.	Twelve Months.	Per Cent. of Addition.	Actual Increase from Six to Twelve Months.	Increase of Ratio.
In-door	1,147	1,958	71%	1,163	2,295	97%	17%	37% (on 71)
Out-door	24	88	267%	25	109	336%	24% } 69%	26% („ 267) } 55%
Medical orders..	124	648	423%	137	1,133	733%	75%	74% („ 423)
	1,295	2,694	108%	1,325	3,537	167%	31%	55% (on 108)

The increase of ratio comparing six months with twelve months, may, for any apparent reason to the contrary, be the same or approximately the same elsewhere as at Stepney.[8] But with regard to the actual additions it is not so, for the practical abolition of all the more permanent forms of out relief exaggerates abnormally the percentage which the new names bear to those on the list at any one time. To get over this difficulty I have gone back twenty years, as will be shown in the following table. The figures given for each year are themselves the mean of two half-yearly statements:—

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[8] For this the whole of out-door relief must be taken together.

*In-door.**

	One Day.				Six Months.				Ratio of Addition.			
	M.	W.	Ch.	Total.	M.	W.	Ch.	Total.	M.	W.	Ch.	Total.
									P. ct.	P. ct.	P. ct.	P. ct.
1870	345	421	392	1,158	575	621	579	1,775	67	47	48	54
'71	319	379	426	1,124	541	597	573	1,711	69	57	35	52
'72	327	374	336	1,037	681	612	548	1,841	108	63	63	78
'73	312	389	312	1,013	639	626	554	1,819	104	61	78	80
'74	317	422	313	1,052	607	659	624	1,890	91	56	99	80
Mean of 5 years	324	397	356	1,077	609	623	575	1,807	88	56	62	68
1884	420	440	305	1,165	782	679	566	2,027	86	54	86	74
'85	440	444	309	1,193	876	803	628	2,307	99	81	103	93
'86	456	452	268	1,176	843	701	545	2,089	85	55	103	78
'87	456	436	278	1,170	788	669	549	2,006	73	53	97	71
'88	470	429	253	1,152	832	644	519	1,995	77	50	105	73
Mean of 5 years	448	440	283	1,171	824	699	562	2,085	84	59	99	78
Mean of 10 years	386	419	319	1,124	717	661	568	1,946	86	57	78	73
1889	472	426	249	1,147	831	623	528	1,937	76	46	112	69

* The lunatics in asylums, who for official purposes are counted as "out-door poor," are added to the "in-door poor" in this table.

It will be seen that the ratios vary a good deal, from 67 to 108 per cent. with men, from 46 to 81 per cent. with women, and from 35 to 112 per cent. with children. Also that while for adults the ratios show a slightly decreasing tendency, the increase in the case of children is very marked. The greater movement among the children is probably connected with the change in policy as to out relief, some of the children of widows being taken into the schools while the mother manages to maintain herself and the others outside. As this policy is exceptional, I take 70 per cent. as a fair ratio of increase for six months' pauperism among the in-door poor over that as counted on one day.

Out-door.

	One Day.				Six Months.				Ratio of Addition.			
	M.	W.	Ch.	Total.	M.	W.	Ch.	Total.	M.	W.	Ch.	Total.
									P. ct.	P. ct.	P. ct.	P. ct.
1870	263	1,033	1,087	2,383	1,035	1,928	2,993	5,956	294	87	175	150
'71	230	902	843	1,975	658	1,411	1,872	3,941	186	56	122	99
'72	107	491	306	904	293	815	861	1,969	174	66	181	118
'73	66	341	155	562	175	548	524	1,247	211	61	238	127
'74	51	273	104	428	121	361	274	756	137	32	163	77
Mean of 5 years	143	608	499	1,250	456	1,012	1,305	2,774	206	66	161	122

In this case, owing to the subsequent extinction of out relief, I have to rely on these five earlier years only. They do not give a very satisfactory average, and I think it probable that the rate should be not less than 130.

The greater amount of movement among the men as compared to the women is very noticeable throughout.

Medical.

	One Day.	Six Months.	Ratio of Addition.
			Per cnt.
1870	606	1,444	138
'71	479	1,419	196
'72	380	952	151
'73	165	491	197
'74	65	318	390
Mean of 5 years	339	925	173

Here too the effects of a changed policy are very noticeable, and in connection with 70 per cent. for in-door, and 130 per cent. for ordinary out-door, we may perhaps put the normal ratio for medical relief at 160 per cent.

Taking the numbers in receipt of medical relief on any day as one-fourth the number in receipt of other forms of out relief, as was the case at Stepney during these years, we obtain a ratio for all forms of out relief together of $\frac{520 + 160}{5} = 136$ per cent.

These ratios (70 per cent. in-door and 136 per cent. out-door) being for six months, we have still to allow for the difference between six months and twelve months, and we have to deduct for deaths occurring during the year among those who have had relief.

If we may adopt the increase of ratio from six months to twelve months shown at Stepney in 1889, the 70 per cent. for in-door (adding 37 per cent.) becomes 96 per cent.; the 130 per cent. for out-door (adding 26 per cent.) becomes 164 per cent.; the 160 per cent. for medical orders (adding 74 per cent.) becomes 278 per cent.; and finally, the combined out-door ratio of 136 per cent. becomes 187 per cent.

As to deaths, we know that 130 occurred at Stepney among the in-door poor in the year ending 30th April, 1889, and if we allow for these, our ratio is reduced from 96 per cent. to 85 per cent.[9] If it may be supposed that an equal proportion of deaths occurs amongst the out-door cases, the ratios would be reduced from

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[9] At St. Pancras the ratio of addition for twelve months over one day, allowing for deaths, is 70 per cent.; without deaths, 88 per cent.

164 and 278, to 148 and 256 per cent. respectively, or taken together, 187 per cent. becomes 169 per cent. The ratios finally obtained are thus:—

	Per cent.	
In-door pauperism	85	
Out-door ordinary	148	combined 169
Medical orders	256	

or say 85 per cent. in-door, and 170 per cent. out-door.

Combining the two we get 134 per cent., or in other words we find that we have to multiply by 2·34 in place of 3·5 as assumed by Mr. Dudley Baxter. It is noteworthy that the revised rate for twelve months is practically the same as that shown by Mr. Purdy's return for six months, and that this rule, as we have already said, nearly held good with regard to the tested figures for St. Pancras, indicating that the exaggeration due to error in the six months' figures is on the whole about enough to make good the further addition needed for the twelve months' enumeration.

It must be noted here that the proportion of "medical relief "only" cases at Stepney seems to be exceptional. I have obtained information on this subject from twenty other parishes selected to represent London and the great provincial towns, and manufacturing, mining, and agricultural districts, and find in few of them any such proportion as one-fourth, the average being only about one-seventeenth of other forms of out relief on the 1st January, 1891.

If we could assume that the reduction in "medical orders "only" meant a general reduction in the minor forms of relief, the result would be to reduce the total ratio for out-door cases from 170 to 154 per cent. But we have no right to assume this. Out relief consists of permanent or continuing assistance and occasional aid. This, and not that adopted officially between "medical only" and other relief, is the division needed for our purpose. The doctor's visit and his medicine are not counted as pauperising more than the sick person. If any form of food be added, though it be intended strictly for the invalid, the addition is held to pauperise the whole family when the patient is the head of the house; in other cases only the sick person and the responsible head of the family are returned as paupers.

The policy pursued in the matter of giving food as well as medicine, affects the proportion of "medical order only" cases to the rest, but there is no reason to suppose that the proportion of slight to serious cases is affected. It may therefore be assumed that any reduction of rates due to a small proportion of "medical "order only" cases would be counterbalanced by an increased ratio on other forms of out relief. The figures we have from Ward VI at St. Pancras confirm this, showing as they do for all slight forms of relief a sevenfold ratio for the twelve months (see p. 618), which is higher than any ratio made use of in the foregoing calculations. We know, moreover, that the proportion of "medical order only" cases at St. Pancras to other forms of out-door relief is as 1 to 12.

In reconsidering these ratios (85 per cent. in-door, 170 per cent. out-door, and 134 per cent. mean) before making any use of them, we must remember that much uncertainty attaches to them, because they are compounded of varying factors which may and probably do play a very different part in different unions. Perhaps no two unions would be alike, and accurate details from twenty unions, if we had them, might not represent the rest correctly.

The percentage to be added to the six months' total of in-door poor, which we have assumed to be 85 per cent., is itself, as we have seen in the case of both Stepney and St. Pancras, compounded of various ratios from 10 per cent. to 500 per cent., according to the character of relief given, and further, wide differences apply as between men and women, and as between those who are over or under 60 years of age. With the out-door it is the same; there are those in receipt of regular weekly allowances, whose numbers are almost constant, and others receiving temporary assistance, medical or otherwise, who may perhaps be increased tenfold before the year is out. Moreover, for the out-door cases my own figures are much less complete than for the in-door.

It is with great unwillingness that I lay such doubtful figures before this Society, and my only excuse is that the matter is important, and has become pressing, and no better can be obtained. This being so, I trust I may not be thought presumptuous if I make a suggestion as to the manner in which the Local Government Board's periodical returns might be made to give the required information. My proposal in brief is, that the statistics should take the form of a running account from month to month, showing the number in receipt of each kind of relief on the first of each month, with the particulars of those who applied for and obtained relief during the month, these being divided into (a) those who had, and (b) those who had not been in receipt of any form of relief during the twelve months preceding their present application. This form will show the magnitude, and to some extent the character of the stream of pauperism, but would need to be supplemented by a half-yearly return, which should show in a similar manner the movement for the half year, and the total number of paupers who had at any time within twelve months sought and obtained relief. In order to make myself quite clear, I subjoin examples of returns in the form I would suggest.

TABLE I.—*Monthly Return of Pauperism.*

Institution or Class.	Number in Receipt of Relief on 1st January.			Number of Persons who apply for and are granted Relief between 1st January and 1st February.						Number in Receipt of Relief on 1st February.		
				Those who have received Relief within Twelve Months of Present Application.			Those who have not received Relief within Twelve Months of Present Application.					
	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch.
In-door—												
Able bodied												
Not able bodied												
Insane												
Out-door—												
Able bodied												
Not able bodied					(*a*)			(*b*)				
Insane												
Medical only—												
Able bodied												
Not able bodied												

Note.—It is intended that those who are relieved twice or oftener in the month, should on the first occasion be counted in the *b* column, and on subsequent occasions in the *a* column. Transfers from one institution to another would be counted in the *a* column.

Memorandum as to TABLE II.

To find the total pauperism for any twelve months:—

On 30th June (1892) take numbers from column w + a + b + d + e + h.
„ 31st December (1892) „ x + e + f + h + i + l.

From the number thus indicated must be deducted the deaths which have occurred amongst them, to give the actual total required.

TABLE II.—*Return for Half Year ending 31st December*, 1891.

Institution or Class of Pauper.	Number in Receipt of Relief on 1st July, 1891.			Number of Applications Granted between 1st July, 1891, and 1st January, 1892.												Number in Receipt of Relief on 1st January, 1892.			Total Number of those who have been Relieved during Six Months ending 31st December, 1891.		
				Previously Relieved during									Having previously Received no Relief, or none since 1st July, 1890.								
				Second Half of 1890.			First Half of 1891.			Second Half of 1891.											
	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch.
In-door—		(w)			(a)			(b)			(c)			(d)			(x)				
Able bodied																					
Not able bodied																					
Insane																					
Out-door—																					
Able bodied																					
Not able bodied																					
Insane																					
Medical only—																					
Able bodied																					
Not able bodied																					

Return for Half Year ending 30th June, 1892.

Institution or Class of Pauper.	Number in Receipt of Relief on 1st January, 1892.			Number of Applications Granted between 1st January, 1892, and 1st July, 1892.												Number in Receipt of Relief on 1st July, 1892.			Total Number of those who have been Relieved during Six Months ending 30th June, 1892.		
				Previously Relieved during									Having previously Received no Relief, or none since 1st January, 1891.								
				First Half of 1891.			Second Half of 1891.			First Half of 1892.											
	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch.
(As above)		(x)			(e)			(f)			(g)			(h)			(y)				

Return for Half Year ending 31st December, 1892.

Institution or Class of Pauper.	Number in Receipt of Relief on 1st July, 1892.			Number of Applications Granted between 1st July, 1892, and 1st January, 1893.												Number in Receipt of Relief on 1st January, 1893.			Total Number of those who have been Relieved in Six Months ending 31st December, 1892.		
				Previously Relieved during									Having previously Received no Relief, or none since 1st July, 1891.								
				Second Half of 1891.			First Half of 1892.			Second Half of 1892.											
	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch.	M.	W.	Ch.
(As above)		(y)			(i)			(j)			(k)			(l)			(z)				

The returns at present are made every week, and if this is necessary it could be done exactly in the same way. I, however, do not myself see any advantage to be gained by returns more often than once a month.

The guardians ought to, and probably in nearly all cases do, know whether an applicant has had relief before within twelve months, and any systematic record of persons relieved would serve as the basis for such a return as the foregoing. This record, whether it took the shape of a journal with successive entries, or what might be better, of numbered "case papers," could be so indexed as to avoid any duplicate enumeration. The general adoption of such a system would in many ways lead to valuable results. We should learn the true annual amount of pauperism, and, in addition, all that "periodicity" showed of its character. A better and more uniform system might lead to better and more uniform administration; and, finally, the information accumulated in these records would form a reliable basis for that classification of paupers which must, I think, be the basis of any reform of the law.

More uniform and better administration of the present law must be our first object. It has been proved beyond possibility of dispute that that form of poverty which we call pauperism can be very largely decreased without to the same extent (or it would even seem to any extent) increasing the volume of poverty which is not pauperism. It cannot be done all at once, but it is certain that the gradual withdrawal of public charity in the form of out relief stimulates, or may be made to stimulate, every form of private effort. Greater exertions are made by those in distress to stand up against "a sea of trouble;" those who are bound by family or other ties will do more to help; and, finally, private charity flows more freely. Each of these is to be preferred to any form of public charity.

Part IV.

Old Age Pensions.

It is, however, a question whether by some system of deferred annuity, old age might not be eliminated entirely as a cause of pauperism, and as this question has been raised, and is now under public discussion, I will, without attempting a final judgment, state the case for and against as it appears to me.

First, as to the amount of old age pauperism. For this we mainly rely on Mr. Burt's return, which gives the number of aged people in receipt of relief on 1st August, 1890, in-door and out-door, male and female, able bodied and not able bodied, and by ages, as given below:—

Ages.	In-door.			Out-door.			Combined Total.		
	M.	F.	Total.	M	F.	Total.	M.	F.	Total.
80—	4.949	4,803	9,752	12,456	22,652	35,108	17,405	27,455	44,860
75—80...........	7,086	5,298	12,384	16,474	32,021	48,495	23,560	37,319	60,879
70—75...........	9,953	6,856	16,809	17,633	43,266	60,899	27,586	50,122	77,708
65—70...........	9,468	6,339	15,807	10,567	35,866	46,433	20,035	42,205	62,240
Total over 65	31,456	23,296	54,752	57,130	133.805	190,935	88,586	157,101	245,687
60—65...........	8,018	5,354	13,372	5,959	21,849	27,808	13,977	27,203	41,180
Total over 60	39,474	28,650	68,124	63,089	155,654	218,743	102,563	184,304	286,867

It is to be noted that the women are very much more numerous than the men, being on the whole as 176 to 100 over 65, and 195 to 100 from 60 to 65. But it is among the out-door only that the excess occurs, as in-door the men predominate. The disproportion out-door is as 234 to 100 men over 65, and as 367 to 100 men from 60 to 65. The greater proportion of women below 65 seems to indicate that it is not till considerably later in life than with women that old age renders it necessary for men to obtain parish relief.

These are the numbers as returned on one day, and include those receiving "medical aid only." Some possible doubt exists as to the correctness of this return because of the tendency to exaggerate age, especially as improved conditions of pauper life are meted out to those over 60. On this point we can only say that the return has undoubtedly been made in good faith, and that those who may claim more than their true age must at least be apparently "aged" or their claim would be questioned. It also appears that it is not at 60 but later, at and after 65, that the numbers look so large. The possibility of some error should, however, be borne in mind. On the other hand, there is some addition to be made to these numbers if we are to count all as paupers who have had any form of relief during the twelve months. What this addition should be can only be the subject of a very rough estimate. If the addition to paupers of *all ages* be fairly put at 85 per cent. on the average in-door, and 170 per cent. on the average out-door (see *ante*), the ratios for the *old* will be something less, and in what follows, failing more accurate figures, I put the addition at 60 per cent. in-door and 120 per cent. out-door for the old, leaving the ratios for those under 60 and the insane (who are not included in Mr. Burt's return) at 102 per cent. in-door and 201 per cent. out-door respectively. On this assumption we can make the following table:—

Total Pauperism, distinguishing the Ages.

	In-door.				Out-door.			
	Under 60 and all the Insane.	60—65.	65—	Total.	Under 60 and all the Insane.	60—65.	65—	Total.
Total of paupers relieved on 1st July, 1890, divided by ages according to Mr. Burt's return for 1st August	99,983	13,372	54,752	168,107	346,788	27,808	190,935	565,531
Numbers to add to give total pauperism on twelve months' basis	* (102%) 102,017	(60%) 8,023	(60%) 32,851	(85%) 142,891	† (201%) 698,911	(120%) 33,370	(120%) 229,122	(170%) 961,403
	202,000	21,395	87,603	310,998	1,045,699	61,178	420,057	1,526,934

$\underbrace{\text{* Insane. } 9\% \qquad \text{Children. } 42\% \qquad \text{Remainder. } 226\%}_{102\%}$ $\qquad$ $\underbrace{\text{† Insane. } 9\% \qquad \text{Remainder. } 224\%}_{201\%}$

On the same assumption, the following table gives the proportion of paupers to population under and over 60 and 65 years of age (estimated, pending full returns for 1891):—

Paupers under 60	1,247,699	Population under 60	26,866,294	Ratio	4·6%
,, 60—65....	82,573	,, 60—65....	812,028	,,	10·2%
,, over 65....	507,660	,, over 65	1,322,696	,,	38·4%
Total	1,837,932		29,001,018		6·3%

To make this table tell a complete story, we should need to state the percentage of pauperism at every age, but failing this information it may be said roughly that the increase in ratio from 4·6 to 38·4 per cent. is the measure of the effect of old age *directly* or *indirectly* on pauperism. It is not possible to distinguish between the direct and the indirect influence of old age, all the causes of pauperism being aggravated by years; but premising this, it may be said that more than half of the pauperism from 60 to 65, and nearly eight-ninths of that from 65 upwards, must be accounted "old age pauperism," and of the remaining one-ninth not less than half will have fallen into pauperism earlier in life through such causes of misfortune as sickness or incapacity.

As the rate rises with age, it follows that the proportion of pauper deaths will be higher still. Of all who die over 65 it would seem that not less than 40 per cent., and probably more, have had public relief in one shape or other during the last years of their life, and out of these not more than one-ninth will have been chargeable before they were 60.

It is remarkable that Canon Blackley, by an entirely different method, arrives at exactly the same conclusion, the figures given by actual investigation in twenty-six parishes being 42·7 per cent.

Such a state of things is both startling and deplorable, and leaves a considerable margin for possible over statement in the figures I have used.[10]

It is true that "pauperism" means many things, and that of those counted as receiving out-door, and especially medical relief, there are many who are practically self supporting or supported by their friends to the very last. It is true also that it is such as these (obtaining a little assistance occasionally) who swell the list of names and make so great an addition necessary to the paupers of any one day to indicate the total numbers relieved. But no considerations of this kind affect the broad fact that so large a proportion of our old people do, as things now are, seek State aid.

All pauperism no doubt might be said to argue some fault on the part of the pauper. He might have gone less often to the public house; have been more industrious or less lazy; with sufficient care he might have saved; he might have made friends and kept them; if his children had been well brought up they would have taken care of his old age, and so forth. If we all had equal opportunities in every respect this view might be completely true, but things being as they are, it is not tenable. The popular sentiment, which accounts as misfortune the lapse into pauperism of any who up to old age have kept clear of relief, is perhaps more just. Of these, as we have just seen, eight-ninths of aged pauperism consists. Similarly and with even more justice it is felt that those who suffer under long continued ill health, and so ultimately become paupers, are the victims of fate. Such of these invalids as survive must therefore be counted in old age with those who then

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[10] For instance, if the ratio of addition for the in-door old be taken at 50 per cent., and for the out-door at 100 per cent., which would be a low estimate, we should obtain the following figures:—

In-door.

	Per cnt.	
Paupers over 60	50	P. ct. 85
Insane	9	
Children	42	
Remainder	245	

Out-door.

	Per cnt.	
Paupers over 60	100	P. ct. 1·70
Insane	9	
Remainder	240	

		Ratio.	
Paupers under 60 to population under 60		4·8 per cent.	6·3 per cent.
,, 60—65 ,,	60—65	9·3 ,,	
,, over 65 ,,	over 65	35·1 ,,	

for the first time ask relief, claiming sympathy and gentle treatment as paupers by misfortune.

This common and popular view is reflected in our present law, and in its administration. Out relief is granted to a certain extent to respectable but destitute aged people, and exceptional indulgence within the workhouse is dealt out to the infirm; but neither plan is altogether satisfactory. A workhouse is at best a dreary residence. Decent old people who find refuge there cannot but be associated with very questionable companions. Whilst even if actual tyranny is avoided, it is difficult to prevent harsh callous treatment. By contrast out relief has many advantages. It offers for those who, without being able to earn a living, are still able to clean and cook for themselves, a far more desired and desirable existence. They can still remain members of the society to which they are accustomed, can still confer as well as receive neighbourly favours, mind a baby, sit up with the sick, chop firewood, or weed the garden. They are not cut off from the sympathies of daily existence, and their presence is often a valuable ingredient in the surrounding life. When the end comes, the presence of well known faces, the sound of well known voices, soothe and succour the last hours. The fact of the pauperism does not often intrude; it is never alluded to.

These advantages, combined with its apparent cheapness as compared to cost of workhouse maintenance, have given the system a strong hold on public opinion. With all classes the giving of out relief to the old is popular. But it has not the one saving virtue of in-door relief. If desirable, it is not deterrent, and it is only on the side of deterrence that our poor law encourages economic virtue. Here we have the weak place, and hence the demand for some pension system which, for most of the aged poor, shall take the place of either in-door or out-door relief, and which, if it does not positively encourage thrift, shall at least not discourage it, by making the exhaustion of all savings a first qualification for aid, as is the case under the present law.

It is held too that those who have worked for a lifetime have a claim to something more than social charity, and however this argument may be regarded as to men, it has a certain force with respect to women, who have often spent lives of the most active and invaluable citizenship without ever having the smallest opportunity for saving. Their husbands give them from their wages the sum they think necessary for current expenses of the household, and expect a very full *quid pro quo* in solid comfort. Men sometimes die leaving an elderly widow entirely destitute, or with little more than enough coming from some friendly society to defray her husband's funeral expenses, and there may or may not be children able or willing to give their mother a home.

There are a variety of pension schemes at present before the public, representing various economic schools, and various political tendencies, but all are based upon the considerations above mentioned. Few of them have been worked out in such detail as would make exact criticism possible. It seems however unlikely that any ingenuity can evade the difficulties which, being based on broad principles, affect them all. Particulars of two proposals are given in the Appendix.

Some would amend or extend the poor law by providing good character pensions on a large scale. The evident objection to this is that such pensioners would be still paupers, whatever they might be called, and that the granting of aid in this form would be no less dangerous in its results than any other description of out relief.

Others would ask the Government to assist voluntary effort by putting a premium on thrift. The objection to this proposal is, that it would be insufficient. Cheapening thrift will not necessarily make people thrifty, and all who were not so would still come upon the rates. Moreover, against this suggestion, as well as the preceding one, may be urged the great difficulty of carrying it into effect without seriously interfering with existing thrift agencies.

Another group would combine compulsion with State aid, and, either on the German system, or by demanding from every young person a payment (on Canon Blackley's original plan), obtain enough to provide, with the help of contributions from employers or from the State, a small pension in old age. Both payment and pension apply, as I understand it, only to those of the poorer class, whose future would be thus to a certain extent secured, and who to this State provision would add their private savings. This proposal is free from the objections which apply to the first two. No direct pauperisation is involved, and it is not necessary to abandon other forms of saving in order to qualify, whilst there is no reason to suppose that the business of thrift agencies would be adversely affected. But there are, I think, fatal objections in the complicated nature of these schemes, and in the practical impossibility of exercising any compulsion of this character on our people.

Finally, there are those who boldly propose universal pensions for the old, and wildly extravagant as it may seem, there is much to be said for this suggestion. It is at least complete, and is not open to the objections which affect the proposals already considered, though it may be itself objected to on other grounds.

In England and Wales there are at present about 733,000 women and 590,000 men over 65 years of age, or in all about 1,323,000 (estimated, pending full returns for 1891). At 13*l.* per annum each, a universal pension list would reach 17,000,000*l.* In taking 65 as the age, and 13*l.* (or 5*s.* per week) as the amount, I accept the bases on which this question is now usually discussed.[11]

Putting the total national income (England and Wales) at one thousand millions per annum, and assuming that taxation falls, or tends to fall, or can be arranged to fall, in true proportion to income, it seems that to maintain such a pension scheme every one would have to pay 1·7 per cent. of their income. What would they get in return? Manifestly they would benefit unequally. The rich as a class would pay much more in proportion to what they would receive than would the poor, but lying between the two there would be a middle class which would pay and receive about equally. Roughly speaking, this middle line of equality would consist of those who have a family income of about 150*l.* a year, shared by four or five persons, young and old. The quite poor, whose incomes for the same number of people is only one-fourth of this sum, would as a class pay in taxes only one-fourth the value of the annuities which would fall to their share, and the extra payments of the better to do and rich would balance the account.[12]

I have spoken of the people by classes, because for individuals other inequalities are involved. Considering a whole generation, those who die before 65 pay but receive nothing. Considering the facts of a single year, the young in every class pay for the old.

No measure involving so heavy a taxation could pass unless it were in itself exceedingly popular, and on this account these questions of incidence are very important, beyond the merits (yet to be considered) which the proposal may have as a matter of public policy.

The people for this purpose may be taken as belonging to five classes: (1) the quite poor—family income, 50*l.* or less; (2) fair working class position, income 60*l.* to 100*l.* and over; (3) lower middle class, 150*l.* to 200*l.*; (4) middle class, 300*l.* to 1,000*l.*; (5) more or less wealthy class, with income of 1,000*l.* and upwards.

The two classes whose incomes are below 100*l.* pay no income tax, and practically no succession duty, nor would they pay much, though they would pay something, if a tax were placed on all property. Taxation reaches them indirectly, firstly by way of customs and excise duties, which can be recognised in the prices of the things they buy, and secondly, by a gradual levelling process acting through their earnings, which makes it, I think, certain that the burthen of every tax, however levied, is gradually spread, and ultimately borne by them in common with the whole industrial community. In neither case is the pressure very obvious, whilst on the other hand it is probable they would be very much alive to the advantages accruing from the pension scheme in assuring provision at once for the aged, who are a pressing charge to them to-day, as well as in assisting to provide for their own old age. With the poorest class, most of whose old people are in the workhouse or are receiving some parochial assistance outside, the proposal would certainly be popular. These classes count up to more than half the population.

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[11] Scotland on the same calculation would figure for about 2,500,000*l.*, and Ireland with her excessive proportion of old people for over 4,000,000*l.* more.

[12] It may be noted that the working classes would pay through taxation (assuming taxation to fall in proportion to income) about the same contribution towards the cost of these deferred annuities as they do under the German plan, where employer, workman, and State contribute each about a third.

Of the lower middle class, who in numbers stand next, I am not so sure. They are keenly alive to questions of money, would know precisely what they paid, and deliberately weigh this against what they got for it. It is doubtful if they would readily sacrifice themselves for another class, nor would the annuities paid to their own old people appeal very much to them, as in this class the young look to the old rather than the old to the young for assistance. But there is the demonstrable fact that, in exchange for the increase of taxation involved, they would obtain a cheap and perfectly secure deferred annuity, which would tend to satisfy many of them. The class just above this would some of them share the simple view of "what do I get," but others would rather consider the question from the point of view of public policy.

Finally, the upper-middle and wealthy classes would certainly dread a proposal involving the principle of taxation of the rich for the benefit of the poor, and would therefore need to be very fully satisfied that the money would be well spent, and that the scheme has elements of finality, and is not to be regarded as an attack on private property.

Such being the probable attitude of each class, we may pass to more general considerations.

It must be remembered, in considering the cost of such a scheme, that the large sum involved would not be spent in the sense that it would be if used to employ labour, as for instance in armaments. Looked at nationally, it would be merely transferred from one pocket to another. It may also be said that the young in any case support the old; providing for their own old age, or for that of those who have failed to do so themselves. The scheme would be only a new adjustment of this common rule.

As a matter of public burthen the present cost of maintaining aged paupers would be saved. For those *in* the house the guardians would draw the pension (gradually it may be hoped that all except the very helpless or very reckless would manage to find homes outside); and out relief for the aged would naturally come to an end. We spend 8,500,000*l.* on poor relief; the aged poor are a third of the number, and must represent more than one third of the cost. Ultimately then 3 millions might be saved, but the establishments could not be at once cut down. This is the only public saving to be anticipated, and unless specially adjusted in some way would go to the ratepayers, and hence chiefly to the middle and lower middle classes. Nothing can be counted on from the pensions already paid to soldiers, policemen, postmen, and public servants great or small. It is evident that these people all pay their proportion of taxes, and would thus pay for their 5*s.* a week as much, and in the same way as others, by enhanced cost of living due to increased taxation. So that if the special pension of their calling was reduced (as it might be) there would be room for a proportionate rise in their daily pay. We must also disregard the idea that any old man would be above drawing his pension, as it is of the essence of the proposal that the pensions should be for all, and absolutely free from any poverty qualification whatever.

In addition to the poor who are relieved by the State, there are many other old people who are helped by private charity. Some of this charity might be withdrawn, and in so far those who now give it would save, and some would be transferred to other charitable claims. There would at any rate be a relieving of funds in many directions which might be taken advantage of in one way or the other.

We have seen that, on the plan proposed, year by year the young and middle aged lose to the advantage of the old, and the rich to the advantage of the poor, and it is the same with regard to men and women. Throughout it is those who are weakest who profit. As between young and old, time would balance the account if all had equal chances of prolonged life; as it is, there is here a turn in favour of the well to do, whose chances of life are on the whole better.

As between the sexes equality of the kind is hardly expected. It is usually only a question of what man is responsible for the provision for each elderly woman.

As between rich and poor life is a lottery, and comparatively few can say that they are beyond all chances of destitution in old age. It is not only those who were born poor who are found in the workhouse to-day. If the chances of poverty were equal, none could say that they lost while another gained by paying unfairly for a general scheme of pensions. They are not equal. "One of "the few lessons" (says Mr. Leslie Stephen) "which I have "learnt from life, and not found already in copy books, is the "enormous difficulty which a man of the upper classes finds in "completely ruining himself even by vice, extravagance, and folly; "whereas there are plenty of honest people who in spite of "economy and prudence can scarcely keep outside of the "workhouse."

So far as it goes (and it is not very far) this proposal would tend to equalise our lots. It is not, however, this levelling character which is the most alarming feature of any attempt to amend the working of our socialistic poor law. Other considerations are more important. Any State action would be fatal if it in any way disturbed the bases of work and wages, discouraged thrift, or undermined in the slightest degree self respect or the forces of individuality, upon which morality as well as industry depends. If the scheme fails in these points it stands condemned, but if it can be fairly held that universal pensions would have no evil effect in these directions, and if it can be shown also that besides reducing the existing mass of pauperism and lightening much poverty outside, the whole problem of pauperism and poverty would be simplified—then it would be worth while to consider whether the financial difficulties could be faced.

Work, wages, thrift, self respect, and energy are the points in question, and may be taken in the order given. First as to work: the total amount done would be but little affected by the receipt of a pension of 5*s.* a-week after 65. What old men do now they would hardly cease to do, except in so far as a small fixed income would encourage them earlier to turn to such duties as those of watchmen and caretakers. Old women do little beyond helping with their grandchildren, or keeping house for those who are actively at work. They would do this rather more than less as home life came to be substituted for that in the workhouse. Then as to wages: those required by caretakers and watchmen might be less (here indirectly the rich would gain something), but otherwise there seems little reason to fear any lowering effect.

Next as to thrift. Will the assurance of 5*s.* a week after 65 on the whole make those who can lay by at all, less anxious to do so? This sum may be enough to keep an old man or woman out of the workhouse. Except when illness rendered them helpless, or love of drink made them reckless, I believe it would have this effect. But, so much secured, every shilling would tell on comfort. "He who has wants more," is but a worldly version of "To him "that hath shall be given," and I am not sure whether the greater certainty of the enjoyment of saving (now by no means certain) would not make thrift more attractive. Moreover the objects of saving are not exhausted when old age after 65 is provided for. The years of elderly existence and doubtful earnings before the age of 65 has been reached have still to be provided for. Here is a benefit within easy range of the imagination. To live to 60 is likely enough, the certainty of at any rate a pittance would lie beyond, and a bridge would have to be made, the building of which would be a very definite object. Insurance companies, friendly societies, and the government tables would doubtless cater for the demand which might be expected to arise in this direction. Then again there is death to provide for; and the certainty of being able to avoid the workhouse in old age would, one may reasonably suppose, increase the desire already so strong to avoid a pauper funeral. I am therefore inclined to think that such a provision as we are considering, underlying the whole social structure, would have no adverse effect on the business of thrift agencies, but might rather be expected, by raising the whole standard of life, to increase the demand for their services.

Self respect is a question as to which it is difficult to predicate with any certainty, a question of sentiment, beyond proof, and almost beyond argument. I do not see why this honourable feeling should be hurt by the receipt of a pension which all old people alike would draw.[13]

Finally, if the foregoing be true, if work, wages, and thrift and self respect, are not adversely affected, will it not follow that industrial energy and all the forces of individuality will be stimulated rather than checked by security afforded to old age?

This proposal of State pensions is, however, surrounded by dangers on every side, and it is these dangers which put indefeasible limits on what can be done, even stronger than would be found in the difficulties of finance, if the already enormous sum of 17 millions yearly were to be doubled or more.

To take a lower age than 65, or a larger amount than 5*s.* a week, would be dangerous, and increasingly dangerous for every year deducted or every shilling added. At 65 the working days of men are practically over; at 60 they are not. An allowance of 5*s.* a week is about balanced by the cost of maintenance by the guardians in the house, to which the law now gives every one a right. It represents the minimum cost of life, and as the pension would revert to the State (through the guardians) if at any time the pensioner failed to maintain himself outside, it could not be forestalled; there would be no security on which money could be borrowed. But if the pension exceeded 5*s.* a week, any one might, and many would, even if the transaction were made illegal, sell the surplus cost of maintenance for cash down to whomsoever would agree, in exchange for the pension, to board and lodge the pensioner under less galling restrictions than life in the workhouse involves. Further, an annuity from the State if raised from 5*s.* to (say) 10*s.* a week, might fairly be accounted an attack on the business of thrift agencies.

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[13] I assume that the poor law officials would have nothing to do with the payment of the pensions, they would merely receive the amounts due to them for such old people as still came under their charge. Identification and registration might rest with the registrar-general's department, and payment be made through the banking department of the post office or other savings banks. Familiarity with the doors of a bank would perhaps help the cause of thrift.

Sixty-five years of age and 5*s.* a week are as far as it would be safe to go, and may even involve some, though I think not serious, risks. On the other hand, to begin later, or to give less, would be of little use for the object in view. Within such close limits is this project confined.

Such is the case for a general pension scheme put as fairly as I am able to do. On the other hand, besides the great (perhaps insuperable) financial difficulties involved, it must be said that the highest authorities on poor law administration shrink from one and all of these pension schemes.

They point to the results in certain unions where out-door pauperism has been gradually abolished concurrently with no increase of any other form of pauperism, and with a very marked effect in the reduction of old age pauperism, and claim that the figures on which the need for a pension system rests are swollen by the careless giving of relief. They have confidence in the sufficiency of their methods. "We are," they say, "on the right "road, why be tempted to leave it, following false lights? All "now admit the principles of the great reform of 1834, in "adherence to which lies the promise of a sound and steady "improvement. We have survived the first outburst of unpopu-"larity and abuse. The people are now used to our methods. "There is no outcry on their part for change. The outcry is from "above, and of a theoretic, unpractical character."

To such authority and such experience all deference is due, but it would seem that it is only by the unremitting efforts of exceptional men, such as Mr. Bland Garland, who for twenty years has influenced the administration of Bradfield Union, or Mr. John Jones, who for more than twenty years acted as relieving officer at Stepney, that these results can be attained. To attempt the enforcing of such a policy by law would be considered very harsh, and might not succeed, so that, besides being at best very slow in action, it is for the whole country in effect impracticable.

On the other hand it may be urged that the cause they have at heart, the constant improvement of the administration of the poor law, the more thorough application of the principles of 1834, would be aided, and their task lightened, by the practical withdrawal of all the aged except those who are so ill as to be in need of hospital care, or those who have no rag of respectability left. There would still be difficulties enough; the question of widows would remain, and in itself demand the utmost exercise of discrimination, judgment and firmness. The young, the sick, the feeble, and the incapable, to say nothing of the idle, the vicious, and the drunken, all demand wise, and to some extent distinctive treatment, but the principles involved would be more clear when disentangled from old age, and their application might be made more uniform and more strict.

APPENDIX.

National Old Age Pensions.

Although many proposals are "in the air" for the establishment of a system of old age pensions, the two schemes appended seem to be the only ones which have yet been published in a definite detailed form:—

National Providence League.

In a "Statement of Views" issued by this League, dated August last, they say:—

"New proposals are now made for the establishment of a "voluntary State aided old age pension scheme.

"These proposals the National Providence League cordially "welcomes as tending in the direction of its own objects, namely, "the extinction of old age pauperism, and will lend its best efforts "to the advocacy of any scheme resolved upon by the newly "formed 'Voluntary Parliamentary Committee on Old Age "'Pensions,' which does not contravene the following principles:—

"I.—*That contractors for an old age pension State benefit be* "*required to make a contribution from their own resources.*

"II.—*That the contract made by contributors for their own share* "*of the pension assured, be only recognised as entitled to State* "*augmentation if effected through some financially sound organisa-* "*tion; whether a friendly society, an annuity office, a pensions' trust* "*fund established by parliament, or the post office.*

"Subject to these main principles, the National Providence "League ventures to recommend:—

"1. That the pension secured by a contributor from his or her "own resources shall not be less than *6l.* 10*s.* a year, "payable at 65 years of age.

"2. That the amount of pension guaranteed by the State to "meet such sum should be another annual sum of "*6l.* 10*s.*; so that each contributor be entitled at 65 "years of age to a pension of 13*l.*[14] a year.

"3. That the post office organisation be made use of for the "collection of funds if desired, and in all cases for the "payment of State pensions when due.

"4. That every person on completion of his or her own payments shall receive a parchment certificate, stating "the name, age, and address of the insurer, the date of "the completion of the insurance, and also the name "and address of the friendly society, annuity office, "trust fund, or post office savings bank in which the "insurance was effected, and such certificate, after "being countersigned by a magistrate on proof of "identity, shall be presented by the person insured "when the State pension is demanded at any post office.

"5. That the production, at any time, of such a certificate shall "entitle an applicant to receive any poor law relief "which may be necessary during any period of life, in "the form of out-door relief, if so desired.

"6. That on the death of a certificate holder before drawing "pension, a sum, not exceeding 5*l.*, be paid by the State "to his or her nominee.

"7. That no pensioner shall have the right to assign or alienate "any portion of his or her pension of 13*l.* a year.

"8. That as the great object of the National Providence "League is to prevent *pauperism*, it is most desirable "that no part of the State pension subventions should "be chargeable on the *poor rates;* but the League "recommend that the State contribution be divided "between *imperial* and *local* taxation."

Poor Law Reform Association.

The Committee of this Association has issued the following suggestions upon a practical pension scheme:—

"I.—That considering the very large number of persons who, "reaching old age, are driven to seek the assistance of the poor "law, some system of pension is extremely desirable, as such "pensions would enable them to dispense with poor law relief.

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[14] 13*l.* a year is equivalent to 5*s.* a week.

"II.—That, in view of the fact that every person has necessarily contributed, directly or indirectly, to the public funds "during his life, and has, under the present law, if destitute, a "right to poor law relief, a *minimum* pension be receivable by "everyone attaining the age of 65.[15]

"III.—That in order to disconnect all idea of pauperism from "the State pension, to which every aged person should have a "right, such pension should be payable through the post office or "some agency other than that of the poor law system.

"IV.—That any person who shall not be in a position to maintain himself by the aid of the State pension, shall be referred "to the existing poor law authorities, and if poor law relief be "afforded to him, the guardians shall have power to impound the "State pension.

"V.—That with a view of affording every possible facility to "persons to supplement by their own efforts of thrift the minimum "State pension, the existing system of post office insurance should "be so modified as to permit of a pension not exceeding 10*l.* a "year for old age being secured by payment either of a lump sum "or in weekly or other instalments, such modifications being:—

"1. A subsidy from public funds, not exceeding 20 per cent. of "the pension above named.[16]

"2. Special arrangements by the post office to facilitate the "collection of the insurance premiums from or through "employers of labour, for persons in their employment, "and exceptional facilities in those cases in which (as is "often the practice) the employers themselves make the "whole or part of the contributions, as in the German "system."

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[15] Sixty-five being the age at which friendly society sick pay ceases.

[16] Thus, of a pension of 10*l.*, the pensioner's contribution would provide 8*l.* and the State would provide 2*l.*

The Discussion on Mr. Booth's Paper will be printed in the *Journal* for March, 1892 (vol. lv, part 1).

"NATIONALISM *and* COSMOPOLITANISM *in* ECONOMICS." *The* ADDRESS *of the* PRESIDENT *of the* ECONOMIC SCIENCE *and* STATISTICS SECTION *of the* BRITISH ASSOCIATION, *held at* CARDIFF, 1891.

By REV. W. CUNNINGHAM, D.D., D.SC.

THE year which has elapsed since this Association met at Leeds has afforded ample evidence of the vitality of economic studies in England at the present time. It is no small proof of a widely diffused desire to pursue such investigations seriously that a second edition of such a substantial volume as our late President's "Principles of Economics" should have been called for within a few months of the issue of the first. While, too, economics alone among sciences has been hitherto unrepresented by any journal or review published in England, the year which has passed has seen first one and then another quarterly periodical started with the avowed object of catering for the wants of economic students. The larger of these magazines has come into being as the organ of an association which is designed to do other work for our science besides that which it has already undertaken.

Both of these new ventures deserve a hearty welcome from this Section, though in different ways, for they have emanated from different sources. The "Review" bears on the forefront that it hails from Oxford, while the "Journal" and its destinies have been often talked over at Cambridge, and it seems to me, at least, to be full of the Cambridge spirit. The old contrast between these two universities comes out strongly and distinctly. The intense interest which Oxford has always shown in the study of man and of conduct has put her in practical touch with many sides of actual life, and has caused her to be the mother of not a few great movements. But in Cambridge we are so engrossed in the study of things that we have no time to spare for trying to know ourselves. If we ever do give our thoughts to man, we like to think of him as if he were a kind of thing; so that we may apply the same methods which we are wont to use in the study of physical phenomena. If we turn our attention to history, we try to classify the various forms of constitution that have existed on the globe, and then we call the result political science. We may devote ourselves to ancient or modern literature, but they seem to interest us not as vehicles of thought or as forms of art, but as the bases of philological or phonological science. If we investigate human industry, we like to treat the individual as if he were a mere mechanism, and busy ourselves in measuring the force of the motives that may be brought to bear upon him. It is when we deal with physical things that we can be precise; this we are determined to be at all hazards, and of course we may always attain to precision in our statements on human affairs so long as we are content to be superficial, and are not at pains to penetrate to the very heart of the matter. But indeed there are dangers on either hand, whether we give ourselves as best we may to the study of man, and deal with economics in its more human aspects; or whether we are chiefly interested in the study of things, and try to make the fullest use we can of the methods and conceptions of physical science for investigating certain aspects of human affairs. In the new periodicals there is an excellent corrective against either evil, since the Oxford "Review" is largely written by Cambridge men, and the "Journal," which exemplifies the Cambridge spirit, is edited by an Oxford professor.

It might almost seem that with all this new activity there is not so much occasion as there used to be for these annual reunions in Section F. But indeed it is not so. There is much needful work, which will hardly be done at all unless it is done here. There are certainly two ways in which this Section offers great opportunities for promoting economic science, and opportunities which are not available elsewhere in England. Some points may be rendered clearer by debate, and this Section affords an open field for such discussions. It is frequently useful to throw out some hypothesis as a tentative explanation of some group of facts; and the conversations which take place here may help to confirm or to correct a suggestion thus hazarded. A similar result might be obtained by rejoinders in the magazines, but there is, at least, a saving of time when opponents can meet face to face and thresh out their differences by means of talk.

It may easily occur, too, that interesting problems are raised and stated rather than solved by the papers read before this Section; and the power we have of selecting special committees, to work throughout the year at some particular point in order to report to this Section at a subsequent meeting, is an instrument for advancing knowledge which we cannot but value highly.

These advantages might, I conceive, be found in connection with any of the sciences which are represented in the different sections of this Association. But there are reasons in the very nature of our science which render it specially advantageous for economists to take part in such a gathering as this. Our science, as treated by Mill, and I name him because, whatever our differences may be, I feel sure we should all regard ourselves as his disciples, rests on certain assumptions, and takes for granted results which it does not profess to have investigated independently. Many of its premisses are derived from some branch of physical science. As Mill has taught us, political economy assumes the facts of the physical world.[1] But that is a large order; and the economist may often be doubtful what he is at liberty to assume as a physical fact. A meeting of the British Association, where many specialists are brought together, may surely be turned to good account in connection with this difficulty. In previous years we have learnt from one of the sections what we may assume about the future production of gold, while we have heard from another what we may take for granted about the physical possibilities of procuring additional subsistence. We hope to learn from other specialists this year on the one hand about the prospects of our coal supply, and on the other in regard to the physical effects of prolonged hours of work. It is no small advantage to have the annual opportunity of finding more definitely what physical facts we may assume as the bases for economic argument.

Once more—and here we come to the feature which distinguishes our science from the work of so many of the other sections—Political Economy, as Mill has taught us, also assumes the facts of human nature, but human nature and human institutions vary from age to age, and among different races and in different regions. It has sometimes been a complaint against economic science that it assumes a certain type of human being as though it were universal, and that it also takes for granted the excellent but insular institutions under which we live. On this point I shall have more to say presently. But holding, as I do, that some such assumption may often be a convenient instrument for scientific investigation, I would yet urge that there can be few better correctives to possible exaggeration and one-sidedness (from the undue extension of our hypothesis) than that of meeting men who are habituated to different temperaments and different institutions from our own, *e.g.*, to the habits and institutions of our fellow subjects in India. This Association has proved to be a convenient centre, which attracts economists from other lands. It is with genuine pleasure that I welcome, in your name, the visitors from other countries who have honoured us by joining our gathering to-day. By our intercourse with them we may surely help to correct insular prejudices, which are hastily formed and are not unlikely to affect our assumptions about human nature.

It has been from time to time the task of presidents of this Section to deal, in an opening address, with some fresh economic problem that had forced itself upon public attention in the immediately preceding year. I must crave your indulgence if I make no such attempt to-day. For the last thirteen years I have given such time as I could spare from clerical duty and the routine of teaching to the study of English industry and commerce in the past, and I have made no pretence of keeping myself fully informed about the burning questions of the present day. To me the burning controversies of two or three centuries ago are much more fascinating, because we generally know[2] how they ended, and we can hope to decide with some approximation to truth who was in the right and who was in the wrong, or how far both were in the wrong. But after all English history is continuous, and the economic life of to-day is the outcome of the economic life of the past. I do not think it will be wholly idle if I try to set before you, however broadly and superficially, some thoughts about economic affairs to-day, as they appear to one who has spent many hours in trying to habituate himself to the various phases of economic life and opinion in England during stages of her development which have passed away for ever.

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[1] J. S. Mill, "Principles of Political Economy," p. 13.

I.

During the century which succeeded the Crusades there seems to have been a very rapid development of English industry and commerce; and if we tried for a little to place ourselves in thought in that period, we should find ourselves in a world that was strangely like and yet strangely unlike our own. The dialect would be unfamiliar, if not unintelligible; though we might recognise the well-known churches at Westminster, and Salisbury, and Durham, the aspect of the landscape with the open fields would be monotonous, the houses would appear mean and poor, and most of the towns would seem to be big and sleepy villages. While these were the external characteristics, the habits of thought would strike us as equally strange, since each village and each town was so curiously isolated from its neighbours. The ideal of good management in every village, controlled as it practically was by a manorial bailiff, was that it should be self-sufficing and supply its own wants from its own resources, that it should only buy from the outside world what it could not produce for itself and could not do without, and should only sell to the outside world what it had to spare as a surplus. In the towns which were becoming centres of trade there was more enterprise, but it was carefully controlled and organised so as to minister to the good of the particular town. No business man had a wider view; his town was the economic unit, and afforded the means by which he was able to enjoy unimpeded intercourse with the inhabitants of other towns. The prosperity of the town was the economic ideal, and the rivalry of two towns in the same county, like Lincoln and Boston,[3] was as keen as the jealousy between French and English fishermen to-day. There appears to have been some collective buying of foreign wares for the common advantage of the townsmen,[4] but all industry and commerce were organised and regulated under municipal authority with the view of making them subservient to the advantage of the town where they were carried on. The manner in which the townsmen contributed to royal taxation rendered them not unnaturally jealous of anyone who tried to evade his fair share of public burdens by taking advantage of the facilities which their town offered for carrying on his trade without helping to discharge the public obligations. The fact remains that in the thirteenth century commerce was intensely municipal, that the legal forms which were in vogue for recovering debts took this municipal type, while writers on political and economic matters[5] seemed to assume that the city was the sort of group to be regulated and taken into account.

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[2] Some few, like the Newfoundland fisheries dispute, never come to an end. It was decided in 1697, and settled in 1713 and 1763; it was finally laid to rest in 1783, but it seems as lively as ever.

In Tudor times this local and municipal economy was rapidly superseded by a larger system. There had been a decided growth of national feeling and a great deal of national regulation for commerce during the fourteenth and fifteenth centuries, and as this larger economic life developed the old municipal institutions were to some extent superseded. In some cases the old institutions had come to be cramping and positively noxious, so that industry sought other centres and commerce betook itself to new channels. The precise story of the growth of this national economic life in England and the corresponding decadence of the old municipal institutions for industry and commerce is not easy to trace. It may suffice to say that in the time of Elizabeth the change was practically complete; and the subsequent development of economic life can be most easily followed when we look at it from a national rather than a municipal standpoint. From that time onwards there was, comparatively speaking, free intercourse between the different parts of the country; each district, instead of being an isolated unit organised for itself, as it had been in the time of the first Edward, was treated as contributing its quota to the material welfare of the nation; the prosperity of England as a whole, and the consequent strength of England as a political power, were the ideals which economists kept consciously in view, and which gave the framework for all their projects and all their writing on economic topics.

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[3] P. Thompson, "History of Boston," 54.

[4] "Quarterly Journal of Economics," V, 343.

[5] For example, compare St. Thomas Aquinas, "De Regimine Principum."

Here, then, from the time of Elizabeth onwards, we have to deal with a larger economic organism—the Nation, not merely the town, but we still find people pursuing the old economic policy, though they applied it on a much more extended scale than before. Their leading economic idea was to render the nation self-sufficing; to develop its resources, to procure from other countries what England needed and could not produce for herself, and to sell them the surplus of our native commodities. If we were able to open a new market for English exports we congratulated ourselves that we had got a vent for our surplus. If we introduced a new industry, like the silk trade, we rejoiced that we could now hope to supply ourselves with this article instead of purchasing it from the foreigner. If we planted a colony in some distant region, the trouble and expense was gladly undertaken in the hope that the products of the new land would render us independent of some supplies from foreign sources, and thus subserve the economic self-sufficiency of the English nation; the encouragement given to tobacco growing in Virginia, so as to enable us to dispense with supplies which reached us from Spain, is a case in point. Just as there had been a keen rivalry in the thirteenth century between neighbouring towns, so in the seventeenth and eighteenth centuries there was the keenest rivalry between different nations, a rivalry which was fundamentally political, but which affected every side of economic life, since it was recognised that wealth supplied the sinews of power. The whole economic skill of the day was devoted to the task of building up the wealth of the nation as an independent economic organism, that it might be able to hold its own in political disputes with other countries.

II.

The national scheme of economic policy is not so unfamiliar to us as the municipal scheme which it superseded; it is still pursued in many countries, and it seems to me to dominate the present economic policy of the United States. That great nation aims at being self-sufficing, and at dispensing so far as possible with the products and manufactures of other lands. This nationalist policy has found an advocate in List, who has stated the case with wide practical knowledge and careful discrimination of the circumstances of different peoples. But for England and Englishmen that policy is dead. The Anti-Corn Law agitation killed it so far as we are concerned. We no longer contemplate isolation from the rest of the globe; we only grumble because other people interpose barriers which check free commercial intercourse between all parts of the known world. The free-traders have demonstrated that the world as a whole will be better provided with material goods if each nation specialises in those kinds of production for which it is particularly adapted, and caters for the rest of the world in these departments. We have given up all idea that the nation should be self-sufficing; we depend, even for the most necessary articles of subsistence, on communication with other countries; we produce with direct reference to the requirements of foreign markets, and do not merely export a surplus which we cannot advantageously use ourselves. So far as our economic scheme is concerned, we regard England as part of a greater whole—not as an independent national organism, but as one portion of a cosmopolitan economic organism; we desire to have the freest communication with all parts of the world, for on this our very life, our national prosperity in all its branches, depends.

It seems to me, then, that just as there was a struggle in England between the municipal scheme of economic life and the national one in the fourteenth and fifteenth centuries, so there is in the present day a contest all the world over between the nationalist economic policy on the one hand, and the international and cosmopolitan scheme which we Englishmen have adopted for economic purposes on the other. I have argued elsewhere[6] that our commercial success has been greatly due to the early date at which a national economic life was developed in this country; and I cannot regard it as a matter for regret that we have been the first among the nations to throw ourselves heartily into the cosmopolitan economic scheme.

It is a commonplace to say that we live in a period of transition; of course every period is in a sense a time of transition, for the world never does stand absolutely still, but the change that is going on in the economic life of the world to-day is something more than common; the framework on which English policy was fashioned for three hundred years has been laid aside, and all our schemes for industry and commerce are being devised on a new model and worked out on a larger scale. This new model and larger growth are affecting all parts of the globe, and even those countries which would fain pursue the old nationalist economic scheme cannot escape the new influence; international and cosmopolitan economic forces are gradually breaking down national exclusiveness in all parts of the known world.

(*a*.) A very few words will illustrate what I mean. There is in this country a very large formation of capital every year.

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[6] "Growth of English Industry and Commerce," 241, 413.

Mr. Wilson[7] traced it for the earlier years of this century, and Mr. Giffen has calculated it for more recent periods. The capital thus formed seeks investment, and it is ready to flow into any channel where there seems a reasonable chance of profit. It is not confined by national barriers, but is transferred to any country, however distant or however uncivilised, so long as arrangements are made that give a prospect of regular or of handsome profits. The resources of distant colonies, of South American republics, and of Egypt, have been developed by capital borrowed in England. There are, therefore, moneyed men in this country who have a stake, and are directly interested, in the prosperity of many lands they have never seen. Space is ignored, patriotism is left out of sight, and capital is invested wherever there is an apparent promise of profit.

(*b*.) Capital tends too to minimise the differences between nations, since wherever it goes it tends to modify the forms of industrial life. Capital introduces new methods of production, for it brings machinery and thus induces the labourer to spend his whole time in working for wages. There are still many lands where the old system which was general in this country at the close of last century holds good; and where the artisan supports himself partly by labour on his land and partly by his trade. But industrial capital, and expensive machinery, and factory towns are not compatible with such conditions of life. As they are introduced the old domestic system and the family life maintained by bye-occupations are gradually broken up; the artisan becomes wholly dependent on the wages he earns and has no other source of income; thus social life tends to shape itself in a new form. As capital becomes a dominant force in industry, the artisan is induced wholly to relinquish agricultural pursuits, and society is separated into the two great classes of capitalists who employ and labourers who earn wages. There thus comes to be a class sympathy between wage-earners in many lands, such as has never existed before in the history of the world; their difficulties are similar, their voting power is great, and their aspirations are alike; with many of them the interest of their own class in other lands calls forth more real sympathy than the love of a country which is theirs in common with the classes who employ them. The similarity of the conditions of employment in Western Europe was recognised by the Emperor of Germany when he invited the representatives of various powers to join in conference on the Labour problems. In the world of labour, as in the investment of capital, national differences and peculiarities are ceasing to be of much importance.

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[7] "Capital, Currency, and Banking." Preface.

(*c.*) The most striking illustration of the decadence of nationalist economic sentiment is to be found in contrasting the attitude which is now taken by the mother country towards the colonies with that which was constantly assumed during the eighteenth century. The right of the crown to tax the colonies was frequently questioned or resisted, but the right to regulate the development of the colony in the interest of the mother country may be said to have passed unchallenged till the very eve of the War of Independence. In the present day, however, we are inclined to blame a Government which does not administer its colonial affairs solely in the interest of the colony itself and its inhabitants, without attempting to render it economically subservient to the mother country any farther than purely colonial considerations seem to demand. Our colonies give us prestige and importance in all parts of the globe, they form a ring of settlements that are English in language and habits and customs, but they are not directly subservient to our national economic interests, for they may encourage the commerce of foreign countries, and they may come to be our rivals in neutral markets.

(*d.*) Nor is this all; the international movements of labour are far more frequent and rapid than they used to be. Till 1825, English artisans were positively forbidden to emigrate, either to our own colonies or to foreign parts; it was doubtful if engineers were at liberty to go abroad temporarily to set up machinery they had made. But the legal prohibition has been withdrawn, and the new facilities for travel have entirely altered the habits of the labouring classes. There is, of course, some little hesitation from differences of law and of language in foreign parts; but the Lancashire man who gets a good offer to go out as a foreman and organise a spinning mill in Bombay, is not likely to overestimate the importance of these things. He has got a good opening and he will take his chance about his power of making his orders understood.

(*e.*) One consideration which helps to reconcile an Englishman to such a life abroad is the frequency of intercommunication, together with the excellence of the postal service all over the world. The very fact that there is such international organisation is in itself a noticeable sign of the tendency of which I am speaking. Postal communication between different parts of the world is far cheaper and easier than it was between different parts of this country sixty years ago. National barriers offer no practical resistance to the passage of news or the driving of bargains; mail steamers and telegraphs have combined to produce many changes in the habits of business men in the present day.

(*f.*) One more illustration will suffice. For many articles there is now a world-wide market, and it is possible to speculate with the view of engrossing the whole available stock in the world, at any rate so as to be able to rule the market. Corners in cotton may be looked for from time to time. Great trusts like the Standard Oil Company monopolise an article of common consumption, and a Copper Syndicate has run its course. The questions whether such speculations are likely to be profitable or not, and whether they are public dangers, do not concern us now; I merely wish to point out that in actual commerce in the present day we find what may be termed cosmopolitan speculation, which disregards all national differences and takes account of the world as a whole.

These symptoms that economic life in the present day is breaking down national barriers and forming international connections of every kind are very interesting. I know that they are not the only features of our time; there is a revival of national sentiment in many quarters, and national aspirations, if they are more than the idlest sentimentality, involve a desire to create economic life that is national too; in many lands there are increasing attempts to protect native industry. The nationalists of 1784 were enthusiasts for stimulating native industry in Ireland, and for prohibiting the importation of British goods: and the prospects of protection do not seem to daunt the advocates of home rule to-day. Nationalism cannot but be a living power in an age which has seen the union of Italy and the formation of the German empire. I do not ignore these facts though I lay stress on another side, and say that, so far as industrial life is concerned, it is, on the whole, becoming more and more cosmopolitan and international, and less and less fettered by national barriers all over the world. We in England have for good or for evil committed ourselves to the cosmopolitan scheme, and have definitely and deliberately discarded the nationalist system.

III.

1. This striking change in economic life and commercial practice must, one would suppose, be reflected sooner or later in economic doctrine. Of course it cannot be felt all at once; economists, like other men of science, can only observe what has actually occurred and reflect upon it. The science grows as new forms of industrial and commercial life appear, and demand that they shall be taken into account. But we can at least see the manner in which modification must come into the science as conceived by Mill; in accordance with these new phenomena we shall have to entertain *additional* hypotheses about human nature and human institutions. The whole science is, as everyone now seems to agree, hypothetical.[8] The method which Ricardo pursued and

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[8] Keynes, "Scope," 209, 293.

Mill formulated has been generally adopted by English economists, and they are ready to admit that all their results rest on certain assumptions in regard to the physical world and human nature. But while the facts of physical nature may on the whole be regarded as constant for the period of human life on the globe, the historian knows that it is not so with the facts of human nature; human institutions and the characters which are formed by them are modified from age to age; *if we wish to study the economic condition of any actual people at any time, we must work with conceptions that are appropriate to their habits of life.* To Mill it seemed sufficient to assume a single type of human nature—one in which self-interest predominated; and one kind of society—where free competition was usual; all other economic phenomena he dismissed as unsusceptible of scientific treatment. But we do not alter the logical form or change the scientific character of our study if, instead of framing a single hypothesis in regard to human nature and society, and restricting our attention to such phenomena as can be conveniently studied in connection with it, we are prepared to investigate all economic phenomena by making such assumptions in regard to men as are appropriate to the various ages with which we may have to deal. Professor Edgeworth has rightly pointed out that economists often blunder in treating something as constant that is really variable,[9] and I should like to add that the most common illustration of this error may be found in arguments which seem to assume that human nature is a constant,[10] and that the variations, even in long periods, may be neglected. Such is the discussion of the applicability of Ricardo's law, with all it involves,[11] to rents, several centuries ago; but perhaps this is meant as a sort of scientific witticism; it is not always easy to tell when a professor of the dismal science is making a joke.

Pardon me if I dwell on this point with some iteration; in all economic study hypothesis is necessary; it is only by stating some hypothesis that we can artificially isolate a group of facts, and thus give a clear explanation of a portion of the complicated phenomena which go to make up human society; only by carefully stating our hypotheses can we avoid the dogmatism with which economists are so often charged; since by putting forward the condition we assume, we are also stating the limits within which our conclusions hold good. In reasoning from assumed premisses we may obtain conclusions that have demonstrative certainty and state laws which have universal validity[12] in any sphere we can think about, even if there is no place or time where the conditions on which they depend are realised, so that these laws have nothing corresponding to them in any actual existence. Our results may have no material truth, even though they have universal validity. The pursuit of such speculations may be most valuable as a mental discipline, if for no other reason because they may assist us to see how many matters must be taken into consideration if we wish to make our investigations of actual phenomena exhaustive. But if we are careful that our hypotheses about human nature shall not be arbitrary, but shall have as much *appropriateness* as possible to actual men and women in some actual place at some actual time, we get conclusions that are not only universally valid in form, but that also serve to be a convenient instrument for investigating facts. We may assume that people are grouped in nations, and that each individual acts out of pure self-interest; or we may assume that people are grouped in families, and always act from a sense of duty in adhering to known customs; in either case we can state laws that have universal validity on the assumed conditions; but for purposes of empirical investigation, one hypothesis is more convenient for studying the actual facts in western Europe, and the other is more convenient for studying the actual facts on the Russian steppes; they are not equally appropriate to both groups of economic phenomena.

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[9] "Mathematical Psychics," p. 127, note.

[10] Marshall, "Present Position," 15.

[11] See my article, "What did our Forefathers mean by Rent?" "Lippincott's "Magazine," February, 1890.

As Dr. Whewell pointed out in excellent terms,[13] the progress of empirical science demands the employment of appropriate conceptions: but an illustration may enforce this necessity in regard to economic investigation. Some little time ago I was anxious to get a few statistics about the growth of British shipping during last century, and I turned to the beautiful "Statistical Atlas" which was published by William Playfair, who first applied the graphic method to statistics. But I found that his careful diagrams were useless for my purpose, and I think I may add for any possible purpose. He has arranged all his facts with the view of showing in the clearest manner how the balance of trade stood between Great Britain and each of the other countries with which we had commercial dealings, and he thus demonstrated whether any branch was a losing or a gaining trade. At the time when he wrote the unwisdom of this way of looking at things had been clearly exposed, but he had failed to move with the times, and the work on which he spent so much labour was simply thrown away. He only serves as a warning to other economists, lest by adhering rigidly to habits of thought which have ceased to be appropriate

[12] Marshall, "Present Position," 15.

[13] "Philosophy of Inductive Sciences," II, 184.

to the changing conditions of industry and commerce, their investigations and reflections should be out of touch with actual life, and should all too soon find their place in the limbo of misapplied erudition.

(*a*.) To my mind the cosmopolitan and international character of industry and commerce has not yet been sufficiently taken into account by economists. They inherit the conception of mankind as grouped for economic purposes in nations, and they adhere to it very closely. Adam Smith did much to break the old spell and to show that it was not worth while to try and build up an independent national economic life, but he was still under the thraldom of the old phrases. He still spoke of the "Wealth of Nations," and treated the nation as the economic unit. List[14] does indeed speak of Adam Smith as concerned with a world-wide economy, but this is hardly correct; he describes, not a cosmopolitan system, but economic principles that would serve for any nation—they are nationalist still. Cobden and the free traders took the same standpoint; they thought of the nation as an economic whole; they hoped that unimpeded intercourse would bring about more friendly feeling between nations; they anticipated a great brotherhood in which each nation should be a member; but Cobden was intensely nationalist and intensely patriotic.[15] The intercourse has come about, but it has not drawn nations more closely together as nations; it has drawn the elements which composed separate nations into new relationships so as to form cosmopolitan ties and interests, and to break down national barriers and weaken national sentiments. Neither the political economy of Adam Smith nor the political economy of Richard Cobden took much account of the cosmopolitan character of economic life; it has sprung up since their time, but I think that we ought to take account of it, and to make sure that the fundamental conceptions of our science are appropriate to the industrial and commercial phenomena of the present day. We need to think more of the world as a whole, for the practical economic interests of the present are no longer so exclusively national as they used to be. The nation will doubtless continue to have great importance for many economic purposes, just as under the nationalist *régime* municipalities have been useful organisations, which have at present an increasing importance. But the reality of the change is most obvious when we remember the diminished importance of national prosperity with reference to the sources of taxation. In days when national prosperity was the recognised basis of national power, Parliament desired to increase the "funds" from which it could draw for the expenses of the realm. For this purpose the limits of the nation have ceased to be of exclusive importance. Capital flows into all lands, and the income returns to London, and the Income Tax Commissioners collect their quota with remorseless impartiality. English capital invested in the United States pays income tax in just the same way as capital invested here; the maintenance of the national revenue is, to some extent, dissociated from the development of our own national resources or the material prosperity of our own realm. This is a curious phenomenon of modern life which was first clearly brought out, as I believe, by Sir Charles Wood in his Budget speech[16] of 1847. The decreasing importance of national prosperity for political purposes presents an analogy with the decline of municipal economy. In old days the townsmen had been bound together by their obligations to contribute to the royal exchequer; it was this that united the municipalities into a single body for economic purposes. Their decline coincided with the development of a national system of taxation, which in turn called forth a system of fostering the national sources of wealth. There was a great advance in economic doctrine in the fourteenth century, when it was losing its old form and men began to deal with national and not merely with civic interests, and it seems to me that we might do well to let national wealth take a subordinate place in our economic discussions, and to frame our inquiries with direct reference to the bearing of economic changes on the world as a whole.

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[14] "National System of Political Economy," 120.

[15] "Political Writings," p. 144.

(*b*.) At all events, the assumption in regard to individual human nature, which is explicitly or implicitly made in current economic treatises, requires to be reconsidered. The isolated individual, who acts out of self-interest, still holds a prominent place in economics, implicitly at least; for we still hear about the measurement of motives which act on the individual will as if they were the sole object of scientific economic study, not merely a single though an important factor. Motives which affect the collective will of an association act in a different plane and cannot be easily co-ordinated with the others; the individual self-interest of the workman and the collective interest of the trade union to which he belongs often conflict, and most economists have found it convenient to leave these associated and corporate movements in the background, and to justify themselves for concentrating attention on individualist motives by the assertion that "now, as "ever, the main body of movement depends on the deep, silent, "strong stream of the tendencies of normal distribution and ex"change." It is, of course, the simplest assumption to make, and for short periods in recent times it may be sufficiently satisfactory;

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[16] "Hansard," xc, 318, 320.

but there is a danger of falling into grave error if we rely on this assumption for simplicity's sake, and take individual earnings to gauge the labourer's standard of comfort in different centuries of English history.[17] It is not difficult to generalise from the past so as to make it appear that this mode of treatment, by isolating the individual, is less inappropriate now than it has been in some earlier ages; that may be granted at once. Individualism, like nationalism, will doubtless be an important economic category for many purposes, but who shall say that it is even as widely appropriate in England now as it was sixty years ago, when the tide of legislation was dominated by *laissez faire* and the Combination Laws were repealed? Is it so dominant in these days of capitalist trusts and labour leagues as to be the most appropriate conception with which to study all economic phenomena in our own country in the present day?

One disadvantage about this mode of treatment is that we really know so little about the isolated individual and his manner of dealing with other isolated individuals; the mere statement brings out the difficulty. Our assumptions regarding such human nature could only be a satisfactory basis for argument if they tallied with observations made in a large number of instances, so as to form the basis for a valid induction like the great argument of Malthus in his Essay. As Mr. Keynes has admirably pointed out, the value of the deductive method as a means of studying actual economic phenomena depends on the inductive determination of premisses.[18] But in regard to the unfettered action of individuals there can be no such induction, for there are no cases to observe. If we wish to state abstract principles of individual human action we are forced to fall back on another method—to take a type of human nature and analyse it, and it is on this line that economists proceed in framing their fundamental assumption about individual human nature. Bentham, many years ago, attempted to analyse the motives which may be brought to bear upon a man, and reduced them all to quantities of pleasure and pain. Thirty years have elapsed since Mill demonstrated the insufficiency of this analysis, and showed that we must take qualitative as well as quantitative differences into account;[19] and in economics it is specially necessary to attend to qualitative distinctions. It is far less important to measure the force of self-interest than to distinguish the cases where self-interest coincides with family welfare and national prosperity, and those where it does not. Here, if anywhere, it is essential that we should keep abreast of the times, and recognise the importance of qualitative

[17] Rogers, "Agriculture and Prices," v, 618.

[18] "Scope," 214.

[19] "Utilitarianism," 12.

as well as quantitative distinctions in discussing the motives which influence men in their material concerns. But some recent economists seem satisfied that a defective analysis is good enough for them; the crude method which Bentham suggested has been adopted by Jevons;[20] the quantitative analysis of individual motives is spoken of as if it were the principal work of an economist; writers still discuss quanta of pleasure and pain, of utility and disutility; and the individual, as Bentham analysed him, is still a fundamental conception in current economic treatises. "Put a penny in the slot and the model will work." Society is too frequently regarded as an aggregate of similar individuals, whose actions can all be represented with sufficient accuracy by the Benthamite analysis of motives. Such a conception of society is surely out of date to-day.

Very fruitful results have certainly been obtained by those economists who have not busied themselves about measuring supposititious motives, and who do not assume that man is an isolated self-interested individual. Frederic Le Play regards the family as the most convenient unit for economic observations, both in the advanced and the primitive societies; he has distinguished the different types of family and their social importance with rare acuteness, and he has set forth with admirable judgment their respective characters as elements in society. Though too little known in England his work does not stand alone, for Mr. Charles Booth's monumental investigation into the condition of the dwellers in East London is based on a number of investigations in regard to the circumstances of families. In the family there is a natural social and economic unit, which was of much actual importance before English municipalities arose, and before English national life asserted itself in economic affairs. The family is a natural unit which is destined to survive even if our national industry and commerce are more and more merged in cosmopolitan and international progress.

2. When I thus criticise the fundamental conceptions and assumptions of current economic science, as very imperfectly appropriate to the actual conditions of industry and commerce to-day, I fear I may be charged with misrepresenting the work of recent economists. To this charge I am ready to plead guilty at once; I think it very likely I have misrepresented them, and I am extremely sorry for it, for I have not done it carelessly or deliberately—I have sedulously endeavoured to avoid it. The fault lies not with me, but with writers who, when they leave their studies and translate their formulæ into the language of common

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[20] "Theory," 30.

life, forget that they have to do with stupid people; they claim a liberty to alter their definitions from time to time as the exigencies of their argument shall require, and they do not take sufficient pains to state clearly and fully what their assumptions are. Despite my best endeavours, I may not always succeed in following them and reconciling their apparent inconsistencies. Ricardo, as Professor Marshall excellently says,[21] made "the great error of taking "for granted that his readers would supply those conditions that "were present to his own mind." "He changes from one hypo-"thesis to another without giving notice." And this brings me to the second point on which an historian may be inclined to insist: *that since human nature and institutions change so much, it is most important that our hypotheses regarding them should be stated fully and clearly.* Unless we do so we are not able to keep quite clearly before us the limits within which our arguments are applicable to actual life; but when our hypotheses are clearly stated, we can see directly how far our reasoning is irrelevant to some past condition of society, or how far it would become inapplicable if human nature were to change for the better. Just because economic reasoning is hypothetical and the results are universal in form, hasty readers are apt to forget the comparatively narrow area and short time of actual life to which any single hypothesis is really appropriate, and the limits within which economic generalisations are approximately true; there is a constant tendency to the undue extension of principles that have universal validity, as if they had therefore a wide range of applicability. By clearly stating our hypotheses, we may secure all the advantages which accrue from modern economic science and push the refinements of theory far farther, while we shall keep well before us the hypothetical character and limited applicability of our conclusions, so that we need fear no apparent conflict either with the facts furnished by history or with the ideals which moralists may be endeavouring to realise.

Ricardo, Senior, and some of those who have followed them, have not been careful to state exactly what they assumed. This neglect was often very excusable in Ricardo, especially when he assumed things that were prominent and well-known features in the economic conditions of his day. He did not feel called upon to state some assumption, because it was so clear to common sense that it did not seem worth while to put it on paper. But if there is any lesson that history teaches us, it is that nothing is so well known that we can assume it will always be well known and does not need to be explained. William the Conqueror framed an elaborate scheme for the taxation of England, and recorded the results in "Domesday Book." He said that every place was to pay according to *hides.* This place was rated at so many *hides* and that other at so many more or less. But what was a *hide?* He did not think it necessary to state that, because it was obviously a thing that everybody knew; in the course of time it came to be a thing that everybody had forgotten, and the precise meaning of which is being gradually recovered. But William the Conqueror could hardly be expected to foresee all that, or to know that, in the interests of historical research, he ought to have given a plain definition of the everyday language which he used.

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[21] "Principles," 213, 530.

In much the same way Ricardo could not be expected to foresee that within half a century after he wrote there would be an extraordinary agricultural revolution; he lived before the days of thorough draining, when high farming was still in an experimental stage; in his time English agriculture was still mainly extensive. If prices promised well the farmer would plough more ground and bring a larger area under crop; if prices ruled low, the worst land would go out of cultivation. There were many fields which were actually on the margin of cultivation, and were left waste after the fall of prices in 1816. Ricardo and Ricardo's readers would have the clearest picture before them of the agricultural conditions he assumed when his "Principles" were published in 1817. It is said that his theory of rent does not apply, without modification, to new countries which have been developed since he wrote, or to old conditions of society of which he was unaware, or to the highly intensive farming that has been developed since he died. Very likely it does not; it would be very odd if it did; surely a man may get the credit of giving an admirable explanation of the facts before him even if the terms he used do not directly apply to facts which were about to come into being subsequently. As his reasoning is hypothetical, it has universal validity in form, but Ricardo was far too good a logician to suppose that it therefore had general applicability to all places and times. If he had only stated the conditions he assumed—conditions which were obvious to him and might be easily discerned by us if we chose—the value of his explanation, and the limits within which it is true, would have been clear.

(*b.*) Somewhat similar and similarly excusable carelessness was shown by those economists among whom the doctrine of a wages fund grew up.[22] They did not define it as fixed, but they thought and argued about it as though it was fixed owing to the actual circumstances of their times which they implicitly assumed. So far as real wages are concerned and the available "fund" of the necessaries of life, this was restricted by the operation of the corn laws: it could not be easily increased as a matter of fact. So far as money payments for labour were concerned, the additional outlay which the capitalist was prepared to make for wages was also closely restricted in the great trades of the country. In the textile trades machinery was being introduced but slowly; the contest between hand combing and machine combing had still to be fought, and the power loom was beginning to be a practical success, not only in cotton weaving, but in the ancient and staple trades of the country. The expense of machine weaving could be definitely calculated, and if the expense of production by paying hand labour came up to it then the power loom would be introduced, and the weavers thrown out of employment, in so far as they were not needed to mind the machines. The expense of the machine production of a given quantity of cloth was a "wages fund." This wages fund was practically fixed, and was divided between the large numbers who applied for employment, and among whom the work was "spread out." We may be thankful that these conditions have passed away, but we need not denounce those who formulated a theory of wages, which was on the whole applicable to the times in which they lived, because these times have changed, and it is no longer so applicable to ours. The great English economists of the early part of this century gave excellent explanations of the industrial phenomena with which they were familiar; their error—and a very excusable error—lay in not stating the conditions they assumed, and thus indicating the limits within which their doctrine could be considered to hold good.

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[22] Bonar, "Malthus," 270.

I fear I have occupied a long time in saying very little; yet it is not unnecessary to insist that we shall have the best chance of advancing economic science if we try to make sure, at least for ourselves, that we know what we are talking about. It is well to be clear how far we are dealing with reasonings that have a merely formal validity and universality, and how far with the phenomena of the world we live in. If we are to preserve and develop economics on all its sides, both as a formal science which deals with the relations between economic units of all kinds, and as an instrument for investigating actual facts and understanding them better, then we must be careful to see that our hypotheses are appropriate to the actual conditions of life and most anxious in our endeavour to state fully the conditions we assume.

MISCELLANEA.

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I.—*Report of the "Return of Rates of Wages in the Mines and Quarries in the United Kingdom." By* Dr. R. Giffen. [Parliamentary Paper. C–6455.]

"I have the honour to submit herewith the third volume of the results of the census of wages, which was one of the tasks undertaken by the Board of Trade in pursuance of the resolution of the House of Commons of March, 1886, for the collection of statistics relating to labour. The first and second volumes, already issued, dealt with the 'principal' and 'minor' textile trades respectively, and the present one deals with the mines and quarries of the United Kingdom. The fourth volume, which will give the rates of wages paid to the workpeople employed by local and police authorities and gas and water companies, is awaiting completion, and a further, or fifth volume, relating to the wages paid in the metal and engineering trades, is in a forward state of preparation.

"The Department has still to regret that the small staff placed at its disposal has been unable to prepare for publication with the speed desirable the returns collected during 1886-88. It was only in the year 1888 that it was possible to begin to digest the returns received, and the difficulties involved in this work, which is of a novel character, have necessitated a very considerable correspondence—nearly every return having to be written about on two or more points. It is believed, however, that the care expended in the compilation of the returns has resulted in the publication of tables of rates of wages which rest on a solid foundation of well tested facts. Such tables will prove invaluable as a standard of comparison in any future investigations that may be made either officially or by means of private enterprise.

"The system pursued in obtaining the results given in the annexed tables was fully explained in the report which accompanied the tables relating to the principal textile trades, but it may be useful to recapitulate here the main points that should be borne in mind in estimating the value to be attached to the figures herewith published. A form of return was sent to the employers of labour at mines and quarries. The first page of the form was designed principally to ascertain the total amounts paid in wages to workpeople in a complete year, and also the amounts paid and numbers employed in the maximum and minimum weeks of that year. So that not only was the total annual amount of wages asked for, but also the extreme fluctuations in the numbers employed and in the total weekly earnings. Taken altogether, the information obtained on this part of the form has been found invaluable in completing and verifying the particulars in the detailed part of the return. In the second part a list of all the various classes of workpeople was printed, and the employer was asked to state the number of each class employed, together with the rates of wages and hours of labour of each class in a full week, exclusive of overtime, of which, however, it was found that there was very little worked, and that mainly in connexion with repairs. Separate details were, of course, required for men, lads, women, and girls, as well as for 'time' and 'piece' workers.

"The object of this part of the return was to show in detail not merely the rates of wages paid for each class of work, but also the proportionate numbers employed at each occupation. The two parts of the return bear a relation to each other, and, in a general way, are a check one upon the other. While the detailed part shows the rates of wages for a week of normal work, and if multiplied by fifty-two would give a rate for the whole year, the other part gives the actual earnings for the whole year, which will approximate to the normal rate, though not likely to be exactly the same. There was a further test of the accuracy of the returns incidentally arising from the way in which they were compiled. The rates of wages and other particulars in returns coming from the same neighbourhood were posted up under each occupation, so that any extreme rates, either high or low, could be readily noticed, and, in point of fact, nearly all such rates have been either verified or altered after correspondence. The department have again to thank the employers, managers, and others who have taken very considerable trouble, not only in making out the original returns, but in replying to the numerous inquiries which it has been found necessary to make in order to elucidate or verify the details given therein.

"It should also be noted that in every case *net* rates of wages are given in all the tables. That is to say, wherever a coal hewer or any other class of workman had to pay somebody to assist him with his work, or had to submit to any deductions from his gross earnings on account of being supplied with such articles as powder, oil, candles, &c., or for the sharpening of his tools, all such payments have been deducted from his total earnings in order to ascertain the *net* sum available for private use.

"There is one further preliminary remark that may be made. The rates of wages are given in the tables for a full week. This does not, however, always mean six days, a full week being sometimes represented by five or five and a half days, especially in the case of coal hewers and other miners. In many returns the rates of wages per day were given, and it became necessary to ascertain what was usually considered a full week before converting the day rates into weekly rates of wages. Further, it must not be assumed that because weekly wages are given in the detailed tables, that therefore the workpeople were always paid weekly. In such industries as metalliferous mining and slate getting and making, a great deal of work was done on the contract or piecework system, and monthly settlements were very common—the month being one of four weeks. In these trades, as well as in the coal mining, granite quarrying, and stone quarrying industries, wages were also paid fortnightly.

"It remains to be considered how far the returns received are representative of the trades concerned. Judging by the following table, there can be no doubt that very large samples of the rates of wages paid in the whole trade have been sent to the department:—

Trades.	Schedules Issued.	Schedules Returned.	
		Number.	Per Cent. of Issues.
Coal, iron ore, and ironstone mines....	1,910	323	17
Metalliferous mines	778	96	12
Shale mines and paraffin oil works....	17	6	35
Slate mines and quarries	178	56	31
Granite quarries and works................	123	39	32
Stone quarries	945	151	16
China clay and china stone works	20	7	35

"The percentages shown in the table are really smaller than the true proportions, for the total number of schedules issued includes applications made in error, owing to necessarily imperfect directories.

"The proportion of workpeople covered by the returns to the totals employed in the trades may be assumed to be quite as large as, if not larger than, the proportion of schedules returned to schedules issued. Unfortunately the numbers employed in the trades here dealt with cannot be ascertained with the same completeness as for the textile trades, where the factory returns gave a basis for comparison with the numbers employed, but the following table gives the particulars for coal and metalliferous mines and for another branch of the mining industry:—

Comparison of the Numbers of Workpeople included in the accompanying Returns, with the Total Numbers Employed, according to the Mineral Statistics of* 1886.

Name of Trade.*	Total Employed, according to Mineral Statistics.	Numbers given in Rates of Wages Returns.	Proportion returned to Total Employed.
			Per cnt.
Coal and metalliferous mines (including slate *mines*) †	557,197	87,494	16
Shale mines in East Scotland	3,895	1,670	43

* No comparison can be given for the slate, granite, and stone quarries, and china clay works.

† Except shale mines in East Scotland.

"It may fairly be said that the returns received are a sufficient basis for a true average, when dealt with in the manner already described.

"*Coal, Iron Ore, and Ironstone Mines.*

"The coal and iron mining trades are by far the most important industries dealt with in this volume, and it is proposed to examine the figures relating to them in some detail, so as to bring out certain points that may be of interest. As previously stated, the schedules issued were 1,910, and the number returned 323, or 17 per cent. of the whole number issued. The returns gave the rates of wages for 78,646 workpeople. Of this number no less than 67,429, or 85·7 per cent., were men, 10,729, or 13·6 per cent., were lads and boys, the women and girls numbering 488 only, or 0·7 per cent. In the textile trades the proportion of female labour was very large, whereas in the mining and quarrying trades very few females are employed, and those on the surface of the mine only, all work underground being done exclusively by males in accordance with legal enactments.

"The total amount returned as paid in wages in 1885 was 4,080,207*l.*, and this amount, when divided by the total number employed at October, 1886, namely, 78,646, gives an average annual amount of 52*l.* per head. Detailed particulars will be found in the first of the appendix tables (omitted), but it may be convenient to repeat some portion of that table here, arranging the districts, of which there are 16, in descending order, according to the annual amount per head.

Statement showing the Districts above, at, and below the Average Annual Wage respectively.

Number and Name of District.	Numbers.	Annual Rate per Head.
ABOVE AVERAGE (52*l.*).		£
4. Yorkshire (Cleveland)	2,023	64
2. Cumberland and north-west Lancashire (Furness)	4,535	59
13. Mid-Scotland (Lanark, Stirling, and Dumbarton)	6,682	55
3. South Lancashire	2,844	54
Total	16,084	—
AT AVERAGE (52*l.*).		
1. Northumberland and Durham	17,023	52 *
5. Yorkshire (west and south)	6,374	52
8. South Stafford, Warwick, south Derby, Leicester, and north Worcester	5,959	52
12. South Wales and Monmouth	14,970	52
15. East Scotland (Fife and the Lothians)	4,059	52
Total	48,385	—
BELOW AVERAGE (52*l.*).		
7. North Stafford (potteries)	4,851	50
14. West Scotland (Ayr, north-west Dumfries, and Cantire)	2,859	48
11. Flint, Denbigh, and north Shropshire	955	47
6. Mid-Derby and Nottingham	3,492	45
10. North Somerset and Forest of Dean (Gloucestershire)	734	41
16. Ireland (counties Tipperary, Antrim, and Sligo)	378	34
9. South Shropshire and south Worcester	908	33
Total	14,177	—

* See remarks as to free cottages on pp. 672 and 673.

"The annual amounts obtained by dividing the amount of wages paid in 1885 by the numbers of workpeople employed on 1st October, 1886, are, of course, not necessarily the same as the averages of the former year. The October number may be too high or too low, and to arrive at the true average for 1885 it would be necessary to first determine the true average number employed in that year, and then divide the total amount by that number. Such a number, however, is practically unascertainable for any year, and for nearly all purposes the October number will, in the mass, be sufficiently accurate, because the errors arising will tend to neutralise each other. It is necessary, however, to exercise some discrimination in employing the annual averages in the above table. First, if we compare the number employed at October, 1886, with the numbers employed in the maximum and minimum weeks of 1885 we get for the whole trade, so far as the particulars were given, the following figures:—

Number employed on 1st October, 1886	60,857
,, in maximum week of 1885	64,031
,, in minimum ,,	57,902

"The minimum number is nearly 5 per cent. below the October number, while the maximum is rather more than 5 per cent. above, and the whole difference between the maximum and minimum numbers is about 10 per cent. only—the arithmetical mean of the maximum and minimum numbers being 60,966, or almost exactly the same as the October number.

"It may therefore be inferred that on the whole the number employed at October, 1886, is a very fair number to use in dividing the 1885 total amount of wages. But, while this is true of the whole trade, it is not quite true of each district. When the district averages are tested in this way the average given for the Cleveland district (64*l.*) is found to be a good deal too high, because there was a pretty general decrease in the numbers employed at October, 1886, as compared with the numbers paid wages in the year 1885. On the other hand, the average for the mid-Derby and Notts district (45*l.*) is much too low, because there were more workpeople employed at October, 1886, than at the highest point of the year 1885. In both cases the true annual average was probably about 52*l.*, or the same as the general average brought out for the whole trade. If we substitute 52*l.* in place of the 64*l.* and 45*l.* annual rates given in the table, it will be readily seen that the general average would not be affected.

"There is also another test which can be applied to these figures. The weekly rates of wages given in the detailed part of the return have been multiplied by 52 in order to obtain an annual average, which comes out for the whole trade as 55*l.*, being 3*l.* in excess of the average obtained by dividing the 1885 amount of wages by the October number. This excess is not more than might be expected to arise, because it may be taken for granted that the workpeople were not continuously employed for fifty-two weeks in the year.

A greater difference might even be looked for, a 10 per cent. deduction for loss of time from various causes being true of most of the districts. Testing the average for each district, as given in the preceding table, by the average obtained by multiplying the rates of wages for each district by 52, the results arrived at by the previous test as regards numbers employed are confirmed. The only additional fact brought out is that possibly in the west and south Yorkshire district more time was lost by the workmen in 1885 than usual. The production of coal in this district was less in 1885 than in 1886, but the difference was not very material—the figures being 18,502,000 tons in 1885, and 19,393,000 tons in 1886, the total numbers employed in producing these quantities being 63,592 and 65,763 respectively. It may be interesting to note here that there was no important difference between the production of coal in the United Kingdom between 1885 and 1886, but that both of these years were rather below the years immediately before and after, as will be seen from the following table, which has been prepared from the mineral statistics.

Statement showing the Quantity of Coal and other Minerals raised from Coal Mines, together with the Numbers of Persons Employed in and about such Mines, in each of the Years 1883 *to* 1887.

Years.	Coal.	Other Minerals.*	Totals.*	Persons employed.†
	1,000's of tons.	1,000's of tons.	1,000's of tons.	No.
1883	163,737	13,982	177,719	512,346
'84	160,758	12,749	173,507	516,938
'85	159,351	12,207	171,558	516,743
'86	157,518	10,833	168,351	516,075
'87	162,120	9,561	171,681	522,397

* Including fire clay, ironstone, oil shale, &c., except oil shale produced in East Scotland.

† Exclusive of workers at oil shale mines in East Scotland.

"The above figures relate to mines under the Coal Mines Acts only, whereas the tables of rates of wages include iron ore mines, which, in the mineral statistics, are grouped under metalliferous mines. The aggregate production of coal, ironstone, and iron ore was 174,769,000 tons in 1885, and 171,628,000 in 1886. Broadly speaking, it may be said that the production in 1885 was not so different from the production in 1886 as to materially affect the average earnings, and, looking to the large number, 48,385, at an average of 52*l.*, and to the fact that the number at higher averages (16,084) is little more than the number (14,177) at lower averages than 52*l.*, it may be taken that that amount fairly represents the average earnings in a year like 1885.

"In the textile trades it was pointed out that the proportion of men, women, boys, and girls employed had a good deal to do with determining the general average for a district. This factor does not operate to the same extent with the coal and iron mining trades, but it may be noticed that the lowest district on the list, namely, south Shropshire and south Worcester, is also the district with the largest percentage of females and the second largest percentage of boys. It may be briefly stated that while in many of the districts no females at all were employed, the district referred to had 11·2 per cent. of females, the next highest being Fifeshire and the Lothians with 2·4 per cent. Another low district is north Somerset and Forest of Dean, with 23·6 per cent. of lads and boys, or nearly twice the general percentage of the whole trade. On reference to the detailed tables it will also be seen that this district had a smaller proportion of coal hewers and iron miners (29·6 per cent.) than any other district.

"In the case of the Irish district there can be no doubt that the wages have been very much affected by locality. The state of trade and other facts may also have influenced the wages in the various districts at the date of the census, and those who have a full knowledge of local conditions will be able to take such points into consideration.

"Turning to the detailed tables, it will be seen that a great variety of occupations are shown separately for each of the great coal and iron mining districts, and brought together in a summary for the whole trade. Besides average rates, the average maximum and minimum rates are given. Such average maximum and minimum rates are not, it will be understood, the same thing as the very highest and the very lowest wages earned in individual cases. On the one hand, all overtime pay is excluded, and on the other hand all short time rates. The result being, of course, the normal average, maximum, and minimum rates of wages for what represented a full week's work in each district. It will also be seen that the number of persons paid at rates within 10 per cent. either way of the average rate was generally very large, thus confirming the accuracy of the average itself. There is a further column showing the percentage that each class of workers was of the total number returned. The coal hewers and iron miners together represent from about 30 to 60 per cent. of the whole. It is noticeable that the larger percentages occur in those districts where there is no separate class of 'fillers,' the filling being probably done by arrangement among the coal hewers themselves. This is especially the case in iron mines, where the work is not usually so much subdivided as in coal mines. It should also be remarked that the coal hewers and iron miners are nearly all paid by piece, or in other words, their earnings depend directly on the quantity produced, and only indirectly on the time occupied in doing the work.

"It may be interesting to attempt here a comparison of the earnings of some of the principal classes of workpeople in the various districts. This is done in the following table:—

Rates of Wages in the several Coal, Iron Ore, and Ironstone Districts in the following Employments.

Districts.	Men.								Lads and Boys.	
	Deputy Overmen and Firemen. Time.	Coal Hewers. Piece.	Shifters, Timbermen, or Setters. Time.	Putters and Trammers. Piece.	Banksmen. Time.	Screenmen. Time.	Engine Tenters or Brakesmen. Time.	General Labourers (surface). Time.	Drivers. Time.	Bank and Screen Lads and Boys. Time.
Where General Average Rate was above 52*l*.										
	s. d.	*s. d.*	*s d.*	*s d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*	*s. d.*
4. Yorkshire (Cleveland)	26 –	23 –*	21 5	—	22 –	19 3	23 8	17 8	12 –	—
2. Cumberland and north-west Lancashire (Furness)	26 1	24 8 23 7†	21 9	19 3‡	20 4	18 8	23 1	18 7	—	10 7
13. Mid-Scotland (Lanarkshire, Stirlingshire, and Dumbartonshire)	22 3	22 8	20 8	20 3	17 8	16 1	21 5	15 9	12 6	11 11
3. South Lancashire	28 7	25 –	24 11	19 1	20 8	18 –	27 9	19 –	9 –	—
Where General Average Rate was at 52*l*.										
1. Northumberland and Durham	28 11	26 –	20 9	19 8	20 7	17 2	24 5	18 2	7 6	8 5
5. Yorkshire (west and south)	29 3	28 –	25 4	22 9	20 11	19 1§	25 8	19 6	10 10	8 2
8. South Stafford, south Derby, Warwick, Leicester, and north Worcester	27 –	28 5	21 11	17 6	17 11	18 –	26 8	17 10	11 9	10 9
12. South Wales and Monmouthshire	27 6	22 7	22 1	24 8	19 1	18 3	23 2	17 3	10 –	9 10
15. East Scotland (Fifeshire and the Lothians)	21 7	21 8	—	19 11	18 6	16 4	23 1	16 4	10 5	—
Where General Average Rate was below 52*l*.										
7. North Staffordshire (potteries)	29 4	25 5	23 2	17 3‖	18 11	18 4	24 11	17 4	9 1	10 9
14. West Scotland (Ayrshire, north-west Dumfriesshire, and Cantire)	22 8	21 3	—	19 1‡	19 1	17 9§	22 8	16 8	11 7	9 9
11. Flintshire, Denbighshire, and north Shropshire	—	21 5	19 10	—	16 9		22 9	16 –	—	9 2
6. Mid-Derbyshire and Nottinghamshire	26 8	26 8	23 11§	17 2‡	18 3		25 9	17 11	9 9	9 8
10. North Somersetshire and Forest of Dean (Gloucestershire)	20 4	22 1	—	21 1	16 11		21 1	14 6	—	—
16. Ireland (counties Tipperary, Antrim, and Sligo)	—	15 9 12 5†	—	—	—	—	—	11 2	—	—
9. South Shropshire and south Worcestershire	22 5	18 6‡ 16 8*‡	17 4	16 3‡	17 8	15 3¶	19 4	—	8 7	—

* Ironstone miners. † Iron ore miners. ‡ Time workers. § Some piece workers included. ‖ Some time workers included. ¶ Screenmen and tippers.

"The table, it will be noticed, is arranged in the same order as the table on p. 666, dealing with the annual average amounts, and, of course, is subject to the same remarks with reference to the position on the list occupied by the 'Cleveland' and 'mid-Derby and Notts' districts. If the percentage proportion of each class were the same in every district, and had the same relative influence in determining the total amount paid in wages, the rates given in this table ought to correspond exactly with the annual averages for the several districts. But, as a matter of fact, the proportions vary in the different districts, and, therefore, the table must be taken as merely illustrating the varying rates of pay for somewhat similar work in different districts. Reference may also be made here to the remarks on pp. 672 and 673, respecting the free cottages allowed to married men in Northumberland and Durham.

"Of the 67,400 men, 32,900 fall into the group of 20*s.* to 25*s.*, at an average rate of 22*s.* 4*d.*; 19,800 in the group above, at an average of 26*s.* 9*d.*; and 13,100 in the group immediately below, at an average of 18*s.* 1*d.* Of the 10,700 lads and boys, 6,200 were paid from 10*s.* to 15*s.*, or an average of 12*s.*; 3,900 less than 10*s.*, or an average of 7*s.* 11*d.*; and a few big lads were paid at rates just within the group 15*s.* to 20*s.*, or an average of 15*s.* 6*d.* The women and girls nearly all fall 'under 10*s.*,' the former averaging 8*s.* 2*d.*, and the latter 5*s.* 7*d.* each.

"The general results average out as shown in the following table:—

	Annual.		Per Week.		
	£	*s.*	£	*s.*	*d.*
Men	59	13	1	2	11
Lads and boys	27	17	–	10	9
Women	21	3	–	8	2
Girls	14	11	–	5	7
Average	55	1	1	1	2

"These figures represent the normal wages for constant employment, and, of course, are subject to some deduction for loss of work arising from short time, holidays, sickness, and similar causes. Five weeks out of the fifty-two, or about 10 per cent., were apparently thus lost, and 10 per cent. may therefore be deducted from the amount obtained by multiplying the rates in the detailed tables by 52, in order to obtain the annual average earnings. But, as previously stated, while a 10 per cent. deduction should be made from most of the districts, the rates for the west and south Yorkshire district would probably bear a reduction of quite 15 per cent. on account of short time.

"It should perhaps be stated that short time does not necessarily mean bad trade, the miners sometimes preferring to work less than the ordinary full time. As an interesting instance of this, attention is called to the notes to Districts XIII and XIV, on pp. 33 and 35 of the detailed tables, respecting the restriction of the output of coal in parts of Scotland. This appears to have been entirely a workmen's movement. There is, however, no novelty about it, for in various reports about fifty years old, concerning the condition of the mining population, reference is frequently made to the same kind of thing.

"Another cause of loss of time is, of course, trade disputes. The only district seriously affected in 1885 in this way was the West Riding of Yorkshire. This is known from other sources than the returns received, which, curiously enough, make no mention of a nine weeks' strike in that district during 1885. The men affected are said to have numbered 20,000, and the estimated loss in wages is given in Howell's *Great Strikes* as 150,000*l*. It is possible that the amount returned as paid in 1885 in the Yorkshire district was affected by this strike, although the returns do not allude to the matter.

"Coming down to details, it should be noticed that the loss of pay ordinarily caused by a mine working short time falls principally on the workpeople actually engaged in winning the coal and bringing it to the surface. Overmen, deputies, and similar classes of men appear to be paid a standing wage whether the mine is in full work or not, and consequently the 10 per cent. deduction does not affect this nucleus of highly skilled men so much as the great mass of the workpeople.

"It may be useful to note here that coal mining is affected by seasons as well as by the general state of trade. The maximum months were, so far as the particulars were returned, November to May, the highest month of all being December. The minimum months were, of course, the remainder of the year—the lowest month of all being July. That the oscillation in the earnings of the workpeople partly arising from this cause was not inconsiderable may be seen from the following table, which does not, however, it will be observed, refer to the whole earnings as given in the first part of the return, but only to the earnings mentioned in those returns where the necessary details for the present comparison were supplied. The figures referred to are the following:—

	£
Average weekly amount paid in 1885	61,650
Maximum " "	74,803
Minimum " "	51,542

"The average amount was obtained by dividing the total amount thus paid in wages in 1885 by 52, and it may, therefore, be taken as a guide to the variation in the amount of wages distributed by the firms making returns. The minimum amount, it will be seen, is 16 per cent. below the average, and the maximum amount 21 per cent. above, while the excess of the maximum amount over the minimum amount paid represents a rise of 45 per cent. These variations in the weekly earnings are very much greater than the variations in the numbers employed, the extreme variations between the maximum and minimum numbers being 10 per cent. only. This would seem to point to a good deal of short time, nearly all the men being employed, but not on full time.

"There are two other points that may be referred to here. The first relates to the free cottages and coal which were given in some of the districts in addition to the money wages set forth in the tables of rates of wages. The only district in which it was usual to allow most of the married workmen free cottages was Northumberland and Durham, which, however, is the largest district shown separately in the tables. These cottages are said to be worth about 2*s.* a week, and something like this amount was generally allowed to married men if the employer had not a sufficient supply of cottages. Only the married men had free cottages, and therefore we cannot add 5*l.* to the general average stated in Table 1 of the appendix, though probably the single men and boys indirectly participated in this benefit. It is not necessary to express any opinion as to whether the system is a good or a bad one, but from a statistical point of view the matter cannot escape attention. The practice of allowing householders a sufficient supply of coal for domestic purposes was more general, and full notes on this point are attached to the detailed tables. The value of this form of remuneration was said to be from 1*s.* to 1*s.* 6*d.* per week, but, of course, such estimates would depend on the market price of the coal given.

"The remaining point has to do with the hours of labour in the various districts. From the notes appended to the tables of rates of wages it will be seen that the hours of labour in and about mines are a good deal more complex than in the textile trades, where the hours are either directly or indirectly regulated by Acts of Parliament. It is true that the Mines Regulation Acts fix the maximum hours of labour of boys and girls under sixteen years of age at 54 per week, but, as already stated, these do not form a large part of the whole number of workpeople.

"It should be borne in mind that in the returns the time of workers employed underground is reckoned from bank to bank, that is to say, includes the time occupied in travelling to and from the pit's mouth and the working place, and generally a short interval for one meal. The travelling time, of course, varied a good deal in different mines. If we put together the rates of wages and hours of labour of the coal hewers we get the following table, which may be of interest:—

Statement showing the Hours of Labour Worked in a Full Week by the Coal Hewers Employed on Piece Work in the Various Districts, with their corresponding Average Earnings in a Full Week.

Number and Name of District.	Number Employed at 1st October, 1886.	Average Earnings per Head in a Full Week.		Usual Hours of Labour in a Full Week, reckoned from Bank to Bank.
		s.	*d.*	
8. South Stafford, Warwick, south Derby, Leicester, and north Worcester	1,650	28	5	54
5. Yorkshire (west and south)	2,799	28	–	42½ to 48 & 50 to 52
6. Mid-Derby and Nottingham	1,204	26	8	50 to 54
1. Northumberland and Durham	7,159	26	–	36 to 42
7. North Stafford (potteries)....	1,587	25	5	*
3. South Lancashire	1,137	25	–	45 to 51

* Forty-eight hours actual time at face, assumed to be equal to about 53 to 54 hours bank to bank.

Hours of Labour Worked in a Full Week by the Coal Hewers—Contd.

Number and Name of District.	Number Employed at 1st October, 1886.	Average Earnings per Head in a Full Week.		Usual Hours of Labour in a Full Week, reckoned from Bank to Bank.
		s.	*d.*	
2. Cumberland and N.-W. Lancashire (Furness)	597	24	8	48
13. Mid-Scotland (Lanark, Stirling and Dumbarton)	3,287	22	8	* 51 to 54; 48
12. South Wales and Monmouth	6,978	22	7	54
10. North Somerset and Forest of Dean (Gloucestershire)	180	22	1	46 to 48
15. East Scotland (Fife and the Lothians)	1,832	21	8	44 or 48
11. Flint, Denbigh, and north Shropshire	505	21	5	53½ or 54
14. West Scotland (Ayr, N.-W. Dumfries, and Cantire)	1,515	21	3	45 to 50
16. Ireland (counties Tipperary, Antrim, and Sligo)	43	15	9	72

* Nearly two-thirds of the men worked 51 to 54 hours, and the remainder 48.

"The principal fact brought out by the table appears to be that the number of hours worked is not the sole factor in determining the earnings of the men. For instance, the shortest hours are worked in Northumberland and Durham, although the rate of wages for that district is high on the list. It must also be remembered that, practically, all the married men in this district are allowed free cottages, whereas in the other districts this form of remuneration is unusual.

"A similar table for iron miners points to the same conclusion, namely, that the number of hours worked does not, within certain limits, fix the earnings of piece workers.

Statement showing the Hours of Labour worked in a Full Week by the Iron Ore and Ironstone Miners Employed on Piece Work in the Various Districts, with their corresponding Average Earnings in a Full Week.

Number and Name of District.	Number Employed at 1st October, 1886.	Average Earnings per Head in a Full Week.		Usual Hours of Labour in a Full Week, reckoned from Bank to Bank.
		s.	*d.*	
5. Yorkshire (west and south)	126	24	–	51
2. Cumberland and N.-W. Lancashire (Furness)	2,000	23	7	48
4. Yorkshire (Cleveland)	1,187	23	–	46
13. Mid-Scotland (Lanark, Stirling, and Dumbarton)	164	21	3	54
7. North Stafford (potteries)....	157	21	2	*
10. North Somerset and Forest of Dean (Gloucestershire)	21	17	10	46 to 48
16. Ireland (counties Tipperary, Antrim, and Sligo)	183	12	5	54

* Forty-eight hours actual time at face, assumed to be equal to about 53 to 54 hours bank to bank.

"Variations in the rates of wages and hours of labour, both in coal and iron mines, may possible depend to some extent on the methods of working in the different districts.

"*Metalliferous Mines.*

"Under this heading are included all mines, except coal, iron, and slate, but the total number of workpeople returned as employed is not large, being 6,460 only, and it will be unnecessary to refer to the figures in the tables appended in quite so much detail as in the case of the coal and iron mines. All general remarks previously made are equally applicable to the trade now to be considered.

"There are eight metalliferous districts, but with two exceptions they are all very small, and the conclusions to be drawn from the figures are consequently not quite on so extended a basis as could be desired.

"Taking first the annual amounts, we find that the averages obtained by dividing the 1885 amounts by the October numbers vary from 25*l.* to 43*l.*, the lowest average being, as will afterwards be seen, for a district in which there is an unusually large proportion of female workers. It would be unsuitable, however, to compare the districts with each other upon the basis of this table, because it is found on examination that the rates thus obtained do not approximate closely enough to the rates for the normal week shown in the more detailed return, being in some cases too high, and in others too low. Generally the numbers employed at October, 1886, are higher than the numbers employed in the year 1885. This is especially the case with one or two districts in which the October numbers exceed the maximum numbers employed in 1885 by from 20 to 25 per cent., and, consequently, the average rates for these districts are too low. On the other hand, the average for one district is certainly too high, as a result of the October number being almost as low as the minimum number employed in 1885.

"When we compare, however, the production of 1885 with that of 1886 we find no indication that there is such a general increase of production in the latter year to correspond with the general increase in the numbers employed at October, 1886, as compared with 1885, which increase must consequently have been of a temporary character. It will be seen from the following table, which has been prepared from the mineral statistics, that the production was actually less in 1886 than in 1885 in the districts from which returns were received, the fall being principally in the production of copper at the Cornish mines.

Statement showing the Quantities of the principal Metalliferous Ores produced in 1885 *and* 1886 *in the Districts from which Rates of Wages Returns have been received.*

Number and Name of District and Description of Ore produced.	1885.	1886.
	Tons.	Tons.
1. Cornwall and Devon (mines)—		
Dressed tin ore	12,887	12,801
,, copper ore	34,730	17,611
2. Cornwall (streams and openworks)—		
Dressed tin ore	1,489	1,430
3. Wales (except southern counties) and Salop—		
Dressed lead ore	7,664	7,467
Zinc ore	4,250	4,137
4. Derby and Notts—		
Dressed lead ore	4,561	4,972
Barytes	1,068	1,112
Gypsum	86,787	88,588
5. West Durham, east Cumberland, and south Northumberland—		
Dressed lead ore	19,048	19,557
Barytes	7,575	7,413
6. Other places in north of England—		
Dressed copper ore	147	69
,, lead ore	103	231
Zinc ore	3,809	3,841
Barytes	2,885	2,865
7. Isle of Man—		
Dressed lead ore	6,868	6,257
,, copper ore	236	—
Zinc ore	5,510	4,795
8. Ireland—		
Barytes	8,911	5,397
Iron pyrites	10,009	9,897
Alum clay	9,030	8,262
Totals	227,567	206,702

"From this table we may infer that 1885 was not so different on the whole from 1886, as the numbers employed at October in the latter year would imply, and it becomes possible to consider the rates of wages in 1886 with the object of determining what deduction should be made from the 1886 rates on account of loss of time arising from slack work, holidays, sickness, and the like causes. The rates of wages have been classified in the same way as for coal and iron, and finally multiplied by 52 in order to obtain the annual wage. The result is 37*l*., or 3*l*. more than the amount obtained by dividing the 1885 annual amount by the October number. But, for the reason above stated, 34*l*. is probably too low an average, and it would appear that the amount to be deducted from the normal earnings to arrive at the actual earnings for 1886 is very small. One explanation of this is that a great part of the work in metalliferous mines is done on the contract system, and payments are generally made monthly, so that the wages returned represent in many cases the actual average earnings after all deductions for loss of time have been made.

"It may be interesting to give the details used in building up the general average rate for 1886. Of the 5,046 men, 4,168 earned an average rate of 16*s.* 5*d.*, 310 earned an average of 21*s.* 6*d.*, and 562 an average of 13*s.* 11*d.* only. These rates are, of course, very low as compared with the rates for the coal and iron mining trade.

"Of the boys, women, and girls employed, a few only rise above 10*s.* per week, the average rates being for boys 7*s.*, women 5*s.* 10*d.*, and girls 4*s.* 9*d.*

"Put into tabular form the general results would be as under:—

	Annual.		Per Week.	
	£	*s.*	*s.*	*d.*
Men	42	17	16	6
Lads and boys	18	2	7	–
Women	15	5	5	10
Girls	12	6	4	9
Average	37	4	14	4

"The women and girls are very unequally distributed, being mostly employed at the tin streams and openworks in Cornwall. They form a large proportion of the whole number employed in that district, namely, 36·3 per cent., and have, therefore, an important influence in reducing the annual average for the district referred to (No. II). It may be remarked that females are mainly engaged in dressing the ores obtained from the mines, this work being sometimes carried on as a separate industry. Another explanation of the low rates in this trade is suggested by the localities in which the mines are usually situated, namely in agricultural districts away from the great industrial centres. An interesting extract from a letter showing the intimate connection between metal mining and agricultural pursuits may be quoted:—

"'Most of our lead miners have also small farms—grassland, and at times they leave their work to attend to these little farms. At hay harvest time they are *all* off work, on an average eight days. Then on bargain letting weeks, which occur three times a year, they only work three days in the week. The recognised holidays on Alston Moor, when the miners do not work, are Christmas Day, New Year's Day, Whit Monday, Good Friday, and Alston Fair day.'

"From this it will be gathered that in some cases the miners may have other sources of income besides the wages given in the tables, but the information on this point is not very definite.

"Full notes showing the hours of labour are appended to the detailed tables, but it will not be necessary to discuss this subject here, further than to draw attention to the fact that most of the underground workers were employed for eight hours per day reckoned from bank to bank, and in some cases five days per week were considered full time.

"*Shale Mines and Paraffin Oil Works.*

"This is an industry almost exclusively confined to Scotland, where it is carried on in the West and Mid Lothians. The oil works should not, perhaps, be included in this volume, but as the manufacture of the oil is an integral part of the business of the owners of the mines, it was found expedient to treat the two departments as one trade.

"The annual average obtained by dividing the amount of wages paid in 1885 by the number employed at October, 1886, is 69*l.*, or about 5*l.* more than the average obtained by multiplying the 1886 rates of wages by 52. This is a large excess in favour of the 1885 average, and it is necessary to look for some explanation of it, because the normal annual rate for 1886 might be expected to, and usually does, exceed the annual average for 1885. First, if we compare the production of oil shale in 1885 and 1886, we shall find that the two years are similar in this respect. The following table has been prepared to bring out the point:—

Statement showing the Quantity of Oil Shale raised from the Oil Shale Mines of East Scotland in each of the Years 1884 *to* 1888.

Years.	1000's of Tons.
1884	1,365
'85	1,666
'86	1,655
'87	1,369
'88	2,027

"The production of oil shale in these two years, it may be noticed, is remarkably steady as compared with the fluctuations shown in the other years for which figures are given in the table.

"Turning to the numbers employed in 1885, and comparing them with the number employed at October, 1886, we obtain the following comparison:—

Number employed on 1st October, 1886	2,999
,, in maximum week of 1885	3,324
,, in minimum ,,	2,822

"Here we find that the 1886 October number leans towards the lowest point of 1885, the minimum being only 6 per cent. below the October number, and the maximum 10 per cent. above. This indicates one reason for the 1885 average amount (69*l.*) being too high, the 1886 October number being probably below the true average number for the year 1885. But another explanation is suggested by the notes to the detailed tables, in which it is pointed out that there is some necessary Sunday labour in connection with the oil works. The pay for Sunday night work is included in the weekly rates of wages, but that for the day work is excluded, though both are included in the total amount of wages for the year 1885, the effect being that the average based on the total earnings in 1885 appears larger than the average deduced from the rates of wages for 1886. On the whole, it may be inferred, so far as the limited number of returns received will allow of a general conclusion being drawn, that in years like 1885 and 1886 the losses to the workpeople arising from sickness, slack time, and similar causes are more than balanced by the extra money earned on Sundays. Of course this remark must be taken as applying to the oil workers only. The men employed at the mines do not work on Sundays, and the deduction of 10 per cent. from normal rates which was found to be true in the case of coal mines, would probably be necessary with regard to the rates for the workers in and about shale mines. The annual amounts, however, for miners and oil workers were not returned separately, and, therefore, no more definite statement can be made on this point.

"Similar detailed tables are given for this trade as for the other trades already dealt with, the only further fact that need be noted here being that the miners and drawers, constituting 85 per cent. of the men employed underground, worked about 48 to 49½ hours per week, reckoned from bank to bank.

"*Slate Mines and Quarries.*

This is peculiarly a Welsh industry, the number of persons returned as employed in the slate mines and quarries of North Wales being more than 85 per cent. of the total number returned. It is therefore evident that the wages paid in this district must have a very important influence in determining the general average for the whole trade as given in the following table:—

Statement showing the Districts above and below the Average Annual Wage.

Number and Name of District.	Numbers.	Annual Rate per Head.
ABOVE AVERAGE (53*l.*).		£
2. North Lancashire, Westmoreland, and North Riding of Yorkshire	161	55
1. North Wales (principally Carnarvonshire and Merionethshire)	6,362	54*
Total	6,523	—
BELOW AVERAGE (53*l.*).		
4. Scotland (Argyllshire and Dumbartonshire)	445	45
3. Cornwall and Devon	447	37
Total	892	—

* This average was affected by a great trade dispute in 1885-86, which lasted twenty-four weeks, and involved an estimated loss in wages during that period of 45,000*l.* to 50,000*l.* Of this period about seven weeks were in the year 1885.

"The average obtained by dividing the total amount paid in the North Wales district in 1885 by the total number employed at October, 1886, is 54*l.*, which compares very favourably with the ascertained averages for the coal and iron mining industries. The average for North Wales is reduced in the total by 1*l.* only, principally by the Cornwall and Devon district, the low average for which corresponds very closely with the average (36*l.*) shown for the tin and copper mines. The North Wales slate district being so large, makes it important to call attention to the prolonged cessation of work at one of the principal quarries there in 1885-86. The whole effect of the dispute referred to was not felt in 1885, but the average earnings for that year were probably reduced by this cause to the extent of about 2*l.* per head for the district. This effect, however, was minimised in the above table by the fact that the October number used in obtaining the average (54*l.*) was somewhat low, so that the average for the district, if the dispute had not occurred, would probably have been about 55*l.* for the year 1885. This almost exactly agrees with the average deduced from the 1886 weekly rates for North Wales, which, when multiplied by 52, give an annual amount of 56*l.* per head. The smallness of the difference is probably accounted for by the fact that the bulk of the work is done on the contract system, and, consequently, part of the loss of earnings arising from the men working less than full time is, in effect, already taken off the rates of wages given for this district. A note respecting the system of work will be found on p. 57 of the detailed tables.

"As already remarked, the other districts are comparatively small, and the results rest on a somewhat restricted basis. The average for Cornwall and Devon is evidently affected by the large proportion of lads and boys employed, namely, 20·8 per cent., the percentage for North Wales being 5·3 only. Locality must also be considered, the proximity of a quarry to a district where agricultural labourers seek work being given as an explanation of certain low rates to which attention was called by the department. The averages for the two remaining districts are lower than the weekly rates for 1886 would seem to indicate, and it would appear that a deduction of about 10 per cent. might be made from the normal rates for these districts in deducing the annual amount for 1886 from the weekly rates of wages. One cause of this may be that the slate quarries in these districts were more affected by bad weather than those in North Wales, Cornwall, and Devon. Of course, the work at all open quarries is subject to some interference on account of bad weather, and possibly the more northerly districts suffered most in this way in the year in question. In this connection it may be noted that nearly all the slate mines, as contrasted with open quarries, are in Wales.

"Some of the differences between the four districts may, of course, arise from the description of work not being quite the same throughout; but this is a point into which the department would hardly presume to enter, it being specially a matter for the consideration of those possessing local knowledge.

"*Granite Quarries and Works.*

"From the detailed tables it appears that the granite quarries occur in various scattered parts of England and Wales, in a somewhat more compact area of Scotland, and in county Down of Ireland.

"On analysing the detailed tables (pp. 64—67) it will be noticed that in the English and Irish districts the occupations are not so numerous as in the Scotch district, where granite 'works,' apart from quarries, are very general. There is also some difference between the English and Scotch districts as regards the proportionate numbers employed at certain occupations, such as the following:—

	England and Wales.	Scotland.
	Per cnt.	Per cnt.
Stone breakers, by hand	10·6	0·9
Masons	11·6	21·4

"These variations are not only interesting, but affect the annual averages for the districts, England and Wales having a larger proportion of stone breakers with low rates, and Scotland a larger share of masons with comparatively high rates. Of course this is neutralised to some extent by locality, rates of wages in Scotland having a tendency to be lower than in England. The general result is to place the Scotch district 3*l.* per head above the average for the English district, and 2*l.* above the general average, as will be seen from the following table:—

Statement showing the Districts above and below the Average Annual Wage.

Number and Name of District.	Numbers.	Annual Rate per Head.
ABOVE AVERAGE (49*l.*).		£
2. Scotland (Aberdeen, Kirkcudbright, Argyll, and Inverness)	1,401	51
BELOW AVERAGE (49*l.*).		
1. England and Wales (Leicester, Gloucester, Cornwall, Devon, and Carnarvon)	1,141	48
3. Ireland (co. Down)	88	34
Total	1,229	—

"The real effect, however, is not quite so great as would appear from this table, because 51*l.* is a little too high an average for Scotland, in consequence of the number employed at October, 1886 —used in dividing the 1885 amount—being rather low. The 1886 weekly rates, when multiplied by 52, produce about 53*l.* in the case of Scotland and 54*l.* for England, the Scotch district being greatly reduced by having 17·8 per cent. of boys (mainly masons' apprentices), as compared with 4·6 per cent. in the English district. The average for the Irish district (34*l.*) is affected by locality, and corresponds very closely with the averages in the Irish coal district

(34*l.*) and the Irish metalliferous district (35*l.*). Looking to the whole trade, and comparing the annual averages obtained by the two methods, it would appear that if a deduction of about 12 to 15 per cent. from the rates of wages given in the detailed tables were made on account of loss of pay arising from short time, the annual rate for 1886 could be deduced from the weekly rates. This deduction, which represents from six to eight weeks in the year, is, no doubt, mainly caused by bad weather and the short days of winter interfering with quarry operations.

" *Stone Quarries.*

"This is an industry in which the men work very irregularly, mainly owing to the weather, and the deductions for lost time to be made from the rates of wages for a full ordinary week, as given in the detailed tables, are larger than for any trade yet dealt with, the figure being not less than 21 per cent.

"Arranging the districts according to amounts, we obtain the following results:—

Statement showing the Districts above and below the Average Annual Wage.

Number and Name of District.	Numbers.	Annual Rate per Head.
ABOVE AVERAGE (47*l.*).		£
1. Northern counties of England (Northumberland, Durham, North Riding of Yorks, north Lancashire, and Cumberland)	899	53
7. Central Scotland	410	51
8. East and north-east Scotland	128	51
5. South Wales (Glamorgan and Pembroke)	168	49
3. Denbigh, Cheshire, and North Salop	427	48
Total	2,032	—
BELOW AVERAGE (47*l.*).		
2. West Riding of Yorkshire and south Lancashire	1,321	45
6. South-western district of England (Wilts, Devon, and Somerset)	429	44
4. Mid-England (Warwick, south Salop, Notts, and Lincoln)	450	33
Total	2,200	—

"The districts fall into two almost equal groups, one consisting of five districts above the average, and the other of three districts below the average. It is to be remarked that the average for District 4 is low, because of the number of stone breakers returned whose wages averaged about 10*s.* per week, and the average for District 2 is too low, on account of the October number being near the maximum number of workpeople employed in 1885. On the whole, however, the October number, as tested by the following figures, appears to be an approximately correct divisor, if allowance is made for the fact that the number of months in which the weather does not interfere with out door work exceeds the number so affected:—

Number employed on 1st October, 1886	3,551
" in maximum week of 1885	3,991
" in minimum "	2,800

"The minimum number is 21 per cent. below, and the maximum 12 per cent. above the October number; the difference between maximum and minimum representing a rise of nearly 43 per cent.

"The fluctuations in earnings are still more extreme. So far as the particulars were obtained they are as follows:—

	£
Average weekly amount in 1885	3,292
Maximum " "	4,539
Minimum " "	2,152

"Here we find that the maximum exceeds the average by nearly 38 per cent., and the minimum falls below the average by 35 per cent. The difference between the maximum and minimum weeks is equivalent to a rise from the minimum of no less than 110 per cent., or, if put the other way, by a fall from the maximum to the minimum of nearly 53 per cent. The minimum weeks, of course, occur in the winter months, mostly December and January, when all quarries are more or less affected by the weather and by the short days. It should also be noted that the year 1885 was not apparently a worse year than usual for out door labour. Some of the replies from quarry owners respecting stoppages of work may be briefly quoted:—

"(1.) In winter time we 'play' as much as eight weeks at once.

"(2.) Some of the quarries belonging to this firm are occasionally closed, and during the harvest months they are all closed.

"(3.) The weather is so uncertain that the men will probably not work more than nine months in the year.

"(4.) We only calculate our men to work about 4½ days per week on an average the year through, they being stopped sometimes four or five weeks together through frost, and also through wet weather.

"(5.) There are but very few men who make full time, most of them losing a quarter of a day, and oftentimes more, several times a week.

"(6.) Stone dressers on piece-work, work or not, as they choose, and consequently their pay varies.

"(7.) Scarcely any piece-men work Saturday or Monday after pay day each Friday fortnight.

"A further reply respecting stone breakers may also be of interest:—

"'Stone breakers are an uncertain class of men. They are on piece work, and come and go much as they like. Most of them give assistance elsewhere at agricultural work as odd men to farmers, so that 10*s.* a week paid by us should not be taken as a man's total earnings.

"'A stone breaker, able bodied, can earn with us 20*s.* a week if he puts in, say, 56 hours a week; some men earn 25*s.* a week at this work.'

"*China Clay and China Stone Works.*

"This is a trade mainly confined to Cornwall and Devon, and one in which the variation in rates of wages is very slight, nearly all the rates for men falling into one group, namely, of 15*s.* and under 20*s.*, or an average of 18*s.* 1*d.*, the general average for the whole number of men employed being 18*s.* 8*d.* per week. The annual amount obtained by multiplying the weekly rates for October, 1886, by 52 is about 47*l.*, which is 7*l.* in excess of the annual average obtained by dividing the 1885 amount by the October number, representing a deduction from normal rates of about 15 per cent. for loss of time from various causes. The average obtained for 1885 (40*l.*) is probably correct, but in a year like 1886, which appears from the following table to have been a bad year for this trade, a somewhat greater deduction than 15 per cent. would have to be made from the weekly rates in order to deduce the annual earnings.

Statement showing the Quantities of China Clay and China Stone produced in Cornwall and Devon in each of the Years 1885, 1886, *and* 1887.

Years.	Sent by Rail or Boat from Cornwall.*	Produced in Devonshire.	Total production.
	Tons.	Tons.	Tons.
1885	312,413	31,734	344,147
'86	290,270	32,180	322,450
'87	314,790	32,503	347,293

* Assumed to be the total production in Cornwall.

"*Summary and Conclusion.*

"Putting together in a more condensed form the general results arrived at, we may make some comparison of the wages in the different industries which have been dealt with in this and the two previous reports relating to the textile trades. The following is the first of these summaries, being a statement of the wages in the under-mentioned trades in a full ordinary week, and also for a year of fifty-two weeks:—

omparison of the Annual and Weekly Normal Wages of Men, Lads and Boys, Women and Girls in the undermentioned Trades in the Year 1886.

Name of Trade.	Annual. (Year of 52 weeks.)								Weekly.							
	Men.		Lads and Boys.		Women.		Girls.		Men.		Lads and Boys.		Women.		Girls.	
Mines and Quarries.																
	£	s.	£	s.	£	s.	£	s.	s.	d.	s.	d.	s.	d.	s.	d
oal, iron ore, and ironstone mines....	59	13	27	17	21	3	14	11	22	11	10	9	8	2	5	7
Ietalliferous mines	42	17	18	2	15	5	12	6	16	6	7	–	5	10	4	9
hale mines and paraffin oil works	65	1	27	5	—		—		25	–	10	6	—		—	
late mines and quarries	57	8	20	17	—		—		22	1	8	–	—		—	
tranite quarries and works	57	–	21	9	—		—		21	11	8	3	—		—	
tone quarries	61	19	25	13	—		—		23	10	9	10	—		—	
bina clay and China stone works	48	10	22	16	17	11	—		18	8	8	9	6	9	—	
Leading Textile Trades.																
	£	s.	£	s.	£	s.	£	s.	s.	d.	s.	d.	s.	d.	s.	d.
otton	65	12	24	4	39	15	17	17	25	3	9	4	15	3	6	10
Voollen	60	–	22	–	34	9	19	7	23	2	8	6	13	3	7	5
Vorsted	60	13	16	18	31	–	16	–	23	4	6	6	11	11	6	2
inen	51	13	16	4	23	3	12	17	19	9	6	3	8	11	4	11
Minor Textile Trades.																
	£	s.	£	s.	£	s.	£	s.	s.	d.	s.	d.	s.	d.	s.	
ute..	50	5	17	9	24	19	12	3	19	4	6	8	9	7	4	8
Iemp, &c.	61	–	15	13	25	1	13	6	23	6	6	–	9	8	5	1
ilk	57	16	18	15	26	5	14	13	22	3	7	2	10	1	5	8
arpet	69	4	21	12	28	14	17	19	26	7	8	4	11	1	6	11
Iosiery	63	10	24	14	30	–	21	10	24	5	9	6	11	6	8	3
ace..	70	18	24	7	32	19	16	–	27	3	9	4	12	8	6	2
mallwares	52	7	17	10	28	–	14	17	20	2	6	9	10	9	5	9
lock and shoddy, manufacture of	55	2	27	1	25	7	11	14	21	2	10	5	9	9	4	6
Iair, elastic web, and lamp and candle wick..................................	65	2	19	5	25	13	15	7	25	–	7	5	9	10	5	11

"The figures given in the above table for the year 1886 are, of course, subject to deductions on account of loss of pay during the year arising from slack trade, holidays, sickness, and, in the case of out door workers, from the influence of the seasons. Such deductions have been shown in detail in this and the two previous reports and need not be repeated here. It will be sufficient to say that, on the whole, a deduction of about 10 per cent. from these rates would probably yield the actual earnings in a year like 1886.

"Generally speaking, it will be seen from the table that the rates for men in the mining and quarrying trades are lower than those paid in the textile trades, there being among the comparatively few men employed in textile factories a larger proportion of overlookers and other highly skilled workmen than in mines and quarries, in which the bulk of the work is done by men. The rates for the few women employed at the surface of the mines are, as might be expected, lower than the rates for the factory women, whose work, although possibly of a less arduous kind, usually requires a considerable amount of skill.

"The rates for females are lower on the whole than those for males, the difference in earnings being intimately connected with the fact that the women and men do not, as a rule, do the same kind of work. But this difference in earnings, from whatever cause arising, makes the proportionate numbers of males and females employed a very important factor in determining the annual earnings in a trade. An endeavour to bring out this point, which has already been dealt with as between the different districts in each trade, is made in the following table:—

Statement showing the Proportion per Cent. of Men, Lads, and Boys, Women, and Girls, respectively, Employed in the undermentioned Trades to the Total Employed in such Trades; also showing the Average Annual Amount of Wages.

Name of Trade.	Men.	Lads and Boys.	Women.	Girls.	Annual Averages obtained by dividing the Total Amount paid in 1885 by the Total Number Employed at October, 1886.
	Mines and Quarries.				
					£
Coal, iron ore, and ironstone mines	85·7	13·6	0·5	0·2	52
Metalliferous mines	78·1	16·3	3·9	1·7	34
Shale mines and paraffin oil works	97·7	2·3	—	—	69
Slate mines and quarries	93·5	6·5	—	—	53
Granite quarries and works	88·0	12·0	—	—	49
Stone quarries	93·5	6·5	—	—	47
China clay and China stone works	95·2	3·3	1·5	—	40
	Leading Textile Trades.				
					£
Cotton	22·5	16·7	44·4	16·4	36
Woollen	33·3	12·4	45·3	9·0	35
Worsted	19·2	15·3	46·5	19·0	28
Linen	17·2	10·5	55·4	16·9	25
	Minor Textile Trades.				
					£
Jute	15·1	13·8	58·8	12·3	26
Hemp, &c.	34·0	23·0	35·8	7·2	32
Silk	22·3	8·2	51·5	18·0	27
Carpet	36·0	12·4	36·9	14·7	35
Hosiery	29·7	3·9	61·0	5·4	34
Smallwares	19·3	9·9	54·9	15·9	27
Flock and shoddy, manufacture of	43·2	4·3	51·7	0·8	34
Hair	9·5	6·5	72·9	11·1	23
Elastic web	22·5	3·2	49·6	24·7	29
Lamp and candle wick	5·7	2·7	56·4	35·2	27

"The correspondence, of course, is not exact, other considerations also influencing the annual rate, but the table shows the necessity of taking the relative proportions of men, boys, women, and girls into consideration when attempting to arrive at the annual earnings of the workpeople in a trade. Another point brought out by the table, but which need not be dwelt upon, is that while most of the textile trades are mainly in the hands of females and boys, the mines and quarries are almost entirely worked by men. Many of the men in the latter trades must apparently join after reaching adult age, the proportion of boys employed at the mines and quarries being hardly sufficient to keep up the supply of men.

"Other comparisons of an interesting character might probably be made by those intimately acquainted with the trades, showing the connection between locality and wages. Speaking generally, there can be no doubt that the trades carried on in districts remote from the great industrial centres yield smaller annual money earnings. This does not, however, necessarily mean that the workpeople are in a worse economic condition, because the cost of living, especially as regards rent, may be less in these remote districts. Further, if the work done in such districts is inferior to that done at the headquarters of the trade, the proportion of wages to the value of the commodities produced may really be about the same, although the rates of wages per head are lower. But these are points which can only be suggested for the consideration of those engaged in the various trades, who can bring to bear on the subject a full knowledge of trade and local conditions.

"In conclusion, a brief reference may be made to the general rise in wages since the date of this census, which, however, has all occurred in the mining trade since the year 1888, the evidence rather pointing to a drop having taken place in 1886 and 1887 as compared with 1885. The upward movement has, perhaps, affected coal mining as much as any of the great industries of the country, and the aggregate increase in the wages for this trade must have been very large indeed. Detailed figures showing the precise changes and the number of persons affected have not, however, been collected, but a rough estimate of the general result may tentatively be made.

"The total wages paid in the coal and iron mining trades in 1885 may be taken, on the basis of the wages returns received, as about 27,000,000*l.*, which is approximately 60 per cent. of the value of the products of such mines as given in the mineral statistics of the United Kingdom. It appears that as the price of coal rises in prosperous years the proportion of the price paid in wages rather diminishes; but, allowing that the proportion is now only about 55 per cent. (instead of 60 per cent. as in 1885), this would give as the total paid in wages in these trades in 1890 the sum of 43,000,000*l.*, or an average for the total number employed in that year of rather more than 66*l.* 10*s.* per head. This represents an increase of 28 per cent. on the ascertained annual average for 1885, namely, 52*l.*; and the result agrees fairly well with the following statements made by correspondents to the department:—

"(1.) Between October, 1886, and June, 1890, the wages of all underground men and banksmen advanced 25 per cent., except officials, 3*s.* per week. Above ground men advanced 22 per cent.

"(2.) Wages were 40 per cent. higher in October, 1890, than in October, 1886.

"(3.) The rate of wages was 40 per cent. more at 15th August, 1890, than in October, 1886.

"(4.) The coal hewers' rate applies to two or three years ago, and there has been over 40 per cent. advance in wages since then (letter dated September, 1890).

"(5.) Since date of return wages have advanced 45 per cent. (letter dated 25th September, 1890).

"(6.) Since the return was made all wages have been increased 45 per cent. under sliding scale. Besides, the basis in many items has been advanced, so that the average advance is full 50 per cent.

"(7.) Wages were, at 8th October, 1890, altogether different from those paid in October, 1886. In some cases they have advanced 50 per cent.

"Some of these statements point to even a greater increase than the average of 28 per cent. above mentioned, but in averages all rates must be taken into account. In any case, the statement of an average improvement of 28 per cent. between 1886 and 1890 cannot be considered excessive.

"There has been a similar improvement in wages since 1885-86 in the other industries dealt with, as the following notes show:—

"*Stone Quarries.*—(1.) The wages of grindstone quarriers are now (17th March, 1891) 34*s.* per week, against 30*s.* in October, 1886.

"(2.) The wages of getters, grindstone turners, and rounders are now (17th March, 1891) 34*s.* per week, against 30*s.* in October, 1886.

"(3.) Since the return was made the wages of all the men have been considerably advanced (letter dated 16th March, 1891).

"(4.) Wages have advanced about ½*d.* per hour all round since return was made (letter dated 12th March, 1891).

"(5.) Since the return was made wages have increased, especially in the Slaithwaite district (letter dated 11th March, 1891).

"(6.) Since the return was furnished wages have gone up in this district: masons, from 28*s.* to 33*s.*; labourers, 19*s.* to 22*s.* per week for the same number of hours (letter dated 18th March, 1891).

"(7.) The wages have advanced from 6*d.* to 7*d.* per hour since 1886 (letter dated 18th March, 1891).

"*Shale Mines.*—Since this return was made the rates of wages of miners and drawers have advanced from 4*s.* 6*d.* per day to 6*s.* 6*d.* for miners, and 5*s.* 6*d.* for drawers.

"*Slate Mines and Quarries.*—(1.) 22*s.* was the ordinary wage paid to all labourers at October, 1886, in the slate quarries of this district (Windermere). This class of men cannot now (November, 1890) be obtained under 24*s.* per week.

"(2.) After sending you this return (12th December, 1887) an advance of ¾*d.* per hour was given to all our workmen, and they have that advance up to this date (4th December, 1890).

"*Granite Quarries and Works.*—Since 1886 wages have risen from 30 to 50 per cent., the earnings of sett makers being 25 per cent. more."

II.—*Notes on the Preliminary Returns of the Censuses of some British Colonies—Contd.*

9. *Canada.*

The census in Canada was taken on the same day as in the United Kingdom. The special conditions, owing to the difficulty of travelling in the more remote regions, under which the census had to be taken, are quite sufficient to account for the comparatively late period at which the preliminary return was published. In fact so greatly did the conditions under which the papers were collected vary, that no time limit could be given to the enumerators, and these have not yet handed in the returns for parts of British Columbia and the unorganised territories, consequently the figures for those districts are only estimated. The increase in the population is very small—almost stationary—in the eastern districts, but grows rapidly as we go westwards, where the country is not as yet so thickly populated. From the "summary statement" given below, it will be seen that the population of New Brunswick, Prince Edward Island, and Nova Scotia is almost the same as in 1881; Ontario and Quebec have increased about 10 per cent., while the increase in the wheat producing western territories, and in British Columbia is over 100 per cent. The increase over the whole country is 11·66. Many districts in the eastern (or maritime) provinces have declined, and the same may be said of several districts in Ontario and Quebec. The Canadian Pacific Railway has apparently given a great impetus to British Columbia; and the towns of New Westminster (population 6,641) and Victoria have increased 342·9 and 184·2 per cent. respectively, while Vancouver has sprung from nothing in 1881 to 13,685. Toronto has increased 88·4 per cent., and bids fair to overtake Montreal, which shows an increase of 39·5 per cent.

The following extract and tables are taken from the preliminary return:—

"The results of the census and a comparison with those of 1881 are these:—

"1st. The urban population of Canada is now 1,394,259, an increase of 384,146 souls, equal to an increase of 38·1 per cent.

"2nd. The several groups show the following increases:—

Cities and towns	over	5,000	inhabitants,	40·8 per cent.
Towns	,,	3,000	,,	44·9 ,,
Villages	,,	1,500	,,	20·3 ,,

"3rd. In 1891 there were 47 cities with a population of over 5,000 as against 35 in 1881, an increase of 12 in number.

"4th. In 1891 there were 45 towns with a population from 3,000 to 5,000, an increase of 7 over 1881.

"5th. In 1891 there were 91 villages with a population from 1,500 to 3,000, and in 1881 these numbered 55, an increase of 36."

Population of Cities.

	1881.	1891.	Variations. Increase or Decrease.	
				Per cent.
Montreal	155,237	216,650*	61,413	39·5
Toronto	96,196	181,220*	85,024	88·4
Quebec	62,446	63,090	644	1·0
Hamilton	35,960	48,980*	13,020	36·2
Ottawa	31,307	44,154*	12,847	41·0
St. John	41,353	39,179*	−2,174	− 5·2
Halifax	36,100	38,556†	2,456	6·8
London	26,266	31,977*	5,711	21·7
Winnipeg	7,985	25,642	17,657	221·1
Kingston	14,091	19,264	5,173	36·7
Victoria, B. C.	5,925	16,841	10,916	184·2
Vancouver, B. C.	....	13,685	13,685	....
St. Henri	6,415	13,415	7,000	109·1
Brantford	9,616	12,753	3,137	32·6
Charlottetown	11,485	11,374	− 111	− 0·9
Hull	6,890	11,265	4,375	63·5
Guelph	9,890	10,539	649	6·5
St. Thomas	8,367	10,370	2,003	23·9
Windsor	6,561	10,322	3.761	57·3
Sherbrooke	7,227	10,110	2,883	39·9

* The population in the 1881 column includes the same boundaries as in the 1891 column, and consequently differs in these cases where annexations have taken place since 1881, from the population as given by the Census of 1881.

† The imperial troops stationed in Halifax, and their families (when on the strength of the regiment), are not included in these figures.

Summary Statement of Population (compared with preceding Censuses).

Provinces.	1871.	1881.	Increase.	Percentage.	1891.	Increase.	Percentage.
Eastern—Maritime.							
Nova Scotia	387,800	440,572	52,772	13·61	450,523	9,951	2·25
New Brunswick	285,594	321,233	35,639	12·48	321,294	61	0·02
Prince Edward I.	94,021	108,891	14,870	17·19	109,088	197	0·18
Totals for the group	767,415	870,696	103,281	13·45	880,905	10,269	1·17
St. Lawrence River.							
Quebec	1,191,516	1,359,027	167,511	14·05	1,488,586	129,559	9·53
Ontario	1,620,851	1,926,922	306,071	18·88	2,112,989	186,067	9·65
Totals for the group	2,812,367	3,285,949	473,582	16·83	3,601,575	315,626	9·60
Western.							
Manitoba	25,228	62,260	37,032	146·78	154,442	92,182	148·06
Assiniboia Alberta Saskatchewan	18,000	25,515	7,515	41·75	67,554	42,039	164·76
British Columbia	33,586	49,459	15,873	47·26	92,767	43,308	87·56
Unorganised	30,000	30,931	931	3·10	32,168	1,237	4·00
Totals for the group	106,814	168,165	61,351	57·43	346,931	178,766	106·30
Total population	3,686,596	4,324,810	638,214	17·31	4,829,411	504,601	11·66

10. *New Zealand.*

The preliminary return of the census of April last gives the number of the population by counties and boroughs. The total population of the colony is 668,181, an increase of 47,730 since 1886. This is not so great a rate as prevailed between 1881 and 1886, when the increase was 86,421 souls. However, it represents a rate since 1881 of 23·25 per cent. The number of males is greatly in excess of the females, 332,877 against 293,781 (exclusive of Maories), but this preponderance is entirely in the counties, as in the towns the females constitute the larger portion.

The movement of the population in the towns is very uncertain, and comparison with former censuses is difficult, as the preliminary return does not state whether the boundaries of the towns are the same in 1891 as in 1886. In any case, the names of the different wards of the boroughs are identical, except for Christchurch, to which town Richmond Ward (population 1,421) has been added since 1886. Wellington, the seat of government, has maintained about the same rate of increase between 1886 and 1891, as in the period 1881-86. But in Auckland, which is now only the second town in the colony, an increase of 27·14 per cent. has changed to a decrease of 13·23 per cent. Dunedin has again slightly decreased, but the suburbs more than make up for this. Nelson has also decreased.

	Population.			Increase.		Increase per Cent.	
	1881.	1886.	1891.	1881-86.	1886-91.	1881-86	1886-91.
In counties	291,238	327,328	351,937	36,090	24,609	12·39	7·52
,, boroughs	194,981	245,612	270,503	50,631	24,891	25·96	10·13
,, islands adjacent	602	617	636	15	19	2·49	3·08
,, Chatham Islands	196	199	258	3	59	1·53	29·65
,, Kermadec ,,	....	....	19	....	19	....	....
On shipboard	2,916	4,726	3,305	1,810	−1,421	62·07	−30·07
Total	489,933	578,482	626,658	88,549	48,176	17·75	8·33
Maories*	44,097	41,969	41,523	−2,128	− 446	−4·83	− 1·06
Total New Zealand	534,030	620,451	668,181	86,421	47,730	16·18	7·69

* The real decrease in the number of the Maories may possibly be larger, since more natives may be enumerated at each census, as the suspicions entertained by them become with time a less powerful factor.

Population in Principal Boroughs.

Wellington	20,563*	25,945	31,021	5,382	5,076	26·12	19·50
Suburbs	....	*1,888*	*2,203*	....	....	....	....
Auckland	26,083	33,161	28,773	7,078	−4,388	27·14	−13·23
Suburbs	....	*23,887*	*22,514*	....	....	....	....
Dunedin	24,372	23,243	22,376	−1,129	− 867	− 4·57	− 3·87
Suburbs	....	*22,275*	*23,493*	....	....	....	....
Christchurch	15,213	15,265	16,223†	52	†958	0·34	†6·28
Suburbs	....	*29,423*	*31,623*	....	....	....	....
Napier	5,756	7,680	8,341	1,924	661	33·43	8·61
Nelson	6,964	7,315	6,626	551	− 689	8·15	− 9·42

Same boundaries as in 1886. † *Richmond* ward added; population 1,421.

11. *Tasmania.*

The Tasmanian preliminary returns present some features which do not occur in the preliminary returns of most other countries, giving, for instance, summaries of statistics on education, conjugal condition, birthplaces of persons, and religion. The total number of persons is given as 146,667. This is considerably below the estimated population for 1889 (151,480), but nevertheless represents an increase of 30,962 persons, or 26·73 per cent. This is a more rapid rate of increase than has occurred since the period 1841-47. The number of females to 100 males is 89·12; in 1841 it was 45·54. 73·88 per cent. of the population were born in the colony. The number of Chinese is 839 (0·64 per cent. of the total population), a decrease of 5 on the number in 1881, while there are no aborigines left. There are only two towns of importance, Hobart, the capital, and Launceston, for which the following figures will give all that is necessary:—

	1881.	1891.	Increase.	
			Number.	Per cnt.
Hobart (electoral district)........	21,118	24,905	3,787	17·93
Launceston ,, ...	12,752	17,208	4,456	34·94
Hobart (registration district)...	27,248	33,450	6,202	22·76
Launceston ,,	16,765	21,316	4,551	27·27

III.—*Movement of the Population in France during the Year* 1890. *By* V. Turquan. (Translated from the *Economiste français*, 31st October, 1891.)

Every year, at about this season, we have given in the *Economiste français* the movement of the population during the preceding year, and we have followed with anxiety the gradual and regular diminution of the number of marriages and births. Up till now the number of births, although diminishing, remained above the number of deaths, but in 1890 the situation suddenly became worse.

The *Journal Officiel*, in the report of the Chief of the Statistical Department of France, states that last year there were 269,332 marriages (*i.e.*, 3,602 less than in 1889), 838,059 births (42,520 less than in 1889), 876,505 deaths (81,572 more than in 1889).

Movement of the Population between 1881 *and* 1890.

	Marriages.	Divorces.	Births.	Still-born.	Deaths.	Excess of Births over Deaths.
1881....	262,079	—	937,057	43,841	822,828	108,828
'82....	281,060	—	935,566	44,352	838,539	97,027
'83....	284,519	—	937,944	43,747	841,141	96,853
'84....	289,555	1,657*	937,758	45,386	858,784	78,974
'85....	283,170	4,227	924,558	43,958	836,897	87,661
'86....	283,308	2,950	912,838	43,623	860,222	52,616
'87....	277,060	3,636	899,333	42,930	842,797	56,536
'88....	276,848	4,708	882,639	42,070	837,967	44,772
'89....	272,944	4,786	880,579	42,419	794,933	85,646
'90....	269,332	5,457	838,059	40,535	876,505	– 38,446

* Four last months only.

The excess of births, which during the year before had been 85,000, and which had varied between 44,000 and 200,000 since 1872, has now suddenly changed into an excess of deaths: the population has diminished by 38,000.

This statement is none the less melancholy from having been foreseen, since it shows that in time of peace, in a period of full prosperity, an accident or an epidemic suffices to change the slight excess hitherto yielded by the births into a deficiency.

Such a condition has already been noticed on two occasions since the beginning of the century. In 1854 and 1855 France had lost more than 100,000 inhabitants, on account of the cholera and the war in the East; in 1870 and 1871 the losses, still more important, had been 500,000, carried off by war, sickness, or want, without mentioning the loss of Alsace-Lorraine, which had a population of a million and a half.

From every point of view, therefore, we must deplore the diminution of births and this increase of deaths; yet we consider both to be accidental, for never have the births fallen by 42,000 from one year to another. For some time they certainly lost 2,000, 3,000, and even 12,000; but this tendency, regrettable as it was, was slow, and was compensated by an equivalent decrease in the number of deaths. What has happened then in 1890 to suddenly diminish the number of births in this manner by 5 per cent.? A very simple cause.

An examination of the births month by month, and a comparison with the months of 1889, shows that the number remained approximately the same until the month of August, when they dropped by 2,000. In September there were 8,000 births less than in the same month in 1889; in October there were 12,000 less; in November the excess of 1889 is only 6,000; finally, in December, it is 1,000. Total, 29,000 fewer births during the period August—December. Now it is not necessary to have a very practised eye to perceive that this momentary fall in the births took place precisely, month for month, nine months after the ravages of the epidemic called *influenza*, which had its maximum intensity in January and February.

One can easily imagine, from what has been said, and without our insisting too much on this unexpected, but, in reality, very natural, fact, how many persons were laid up during the winter, and to what extent the birth-rate has been arrested.

Again, if we admit that the influenza has carried off from 30,000 to 40.000 persons, we arrive at the conclusion that, altogether, there are some 70,000 people missing from the French population. Such is the balance sheet of the epidemic; without it the excess of births over deaths would have been nearly 40,000.

Besides, there is no great assumption in foretelling that the mortality for 1891 will be more satisfactory, on account of the ravages of the epidemic itself, which has prematurely carried off a large number of weak people who would otherwise have died later.

On the whole, the results for 1890 are exceptional: the most important point to be considered by any economist who has the future power of France at heart is undoubtedly the decrease in the marriage-rate.

We will now roughly analyse the different results of the year 1890, with regard to marriages, divorces, births, and deaths.

Marriages.—The number of marriages recorded in France last year has again gone down by 3,602; it has continually decreased since 1884, in which year it was 289,555. It is not astonishing that there are 100,000 fewer births than at that period, since the number of marriages is 20,000 lower than then, and the birth-rate still pursues its downward course. The number of marriages per thousand in 1890 was 7; it varied from 5 to 6 per 1,000 in the departments of the Pyrenees and the Alps—where there are many children and few adults, a state of affairs caused by a continual emigration—to 9 in the Seine, which department on the contrary is distinguished by a large proportion of adults. From this it must not be inferred that at Paris people marry more readily than those of the same age in the country; the contrary is the case.

Divorces.—While the number of marriages diminishes, the number of married persons diminishes still more rapidly on account of divorce. It is now seven years since divorces were re-established by law, and already there have been 28,000. The most curious point is that people thought themselves justified in predicting that divorces would practically cease after the first few years following the enforcement of the law in 1884, whereas the prophecy has not been realised; on the contrary. The long standing badly-assorted marriages have, it is true, influenced the first years, but we can no longer attribute to them the actual recrudescence which has taken place during the last two or three years. The following are the official figures:—

1884 (4 last months)	1,657	divorces =	6·6	per 10,000 households.
'85	4,277	,,	5·7	,,
'86	2,950	,,	4·0	,,
'87	3,636	,,	5·0	,,
'88	4,708	,,	6·0	,,
'89	4,786	,,	6·2	,,
'90	5,457	,,	7·0	,,

The frequency of divorces is thus incontestably becoming more and more pronounced. Our colleague, M. Georges Michel, has recently given in this paper a complete statistical analysis of divorces, so we will not discuss this point, but will content ourselves with comparing their number with the marriages. For every 1,000 marriages solemnised, there have been 20 dissolved by divorce. This average is very interesting, especially if we calculate the variations by departments; in Brittany, Vendée, and certain parts about Auvergne, there were only 1 or 2 divorces per 1,000 marriages, whereas there are 35 in the Bouches-du-Rhône, 38 in the Aisne and the Seine-et-Oise, 39 in the Aube, 46 in the Eure, and lastly 58 in the Seine. At Paris there is 1 divorce for every 20 marriages, far too great a proportion.

Births.—The number of births, affected by the epidemic at the commencement of the year, was 838,000. This is almost the same as in 1871. The birth-rate in 1890 was only 21·8 per 1,000. Is it any use recalling the fact that every nation of Europe has a higher birth-rate, varying from 25 to 38 and 40 per 1,000? A few, very few, departments have a birth-rate which can compare with that of England, Germany, or Italy. They are the Finistère, Lozère, Nord, and Corsica. Other departments, on the other hand, have now an exceptionally low rate: 14 per 1,000 in the Gers and the Lot-et-Garonne. Normandy, which has kept up the same feeble rate as formerly, has not for some time since occupied the lowest place; it is the Gascon departments, mostly rich, which have now the lowest rate, and the census of 1891 brings out a large decrease in their population.

In the face of such a state of affairs, which threatens to extend over the whole of France, economists are no longer rejoicing at the foresight of the French nation. They reflect that the time has gone by when Malthus announced in terror that population grew in geometrical progression, whilst riches increased only in arithmetical, and that famine would follow on account of a plethora of inhabitants. Fifty years ago they were concerned as to how to reduce the vigour of our population; we shall soon have to consider the means, if there are any, of increasing it.

So long as marriages diminish, we must expect to see the number of births go down, and three times as fast. If therefore we desire a remedy for this depopulation, we must encourage marriage. We do not believe in the efficacy of premiums nor of a reduction in the taxes as an encouragement, but we do believe there is something to be gained by granting married men certain advantages as regards military service; we have, besides, already had occasion to explain our ideas in this respect. If every married man were exempted from active service, many thousand countrymen would certainly marry, to the great profit of the country districts, emigration from which would cease to a certain degree, and of the birth-rate, since the duration of married life, as well as the number of households, would thus be increased.

Deaths.—There were in 1890 81,572 deaths more than in 1889; such is the first point deduced from the official figures. Half of this recrudescence, *i.e.*, 40,000, took place in the first four months of the year, when the country was visited by the influenza. A study of the mortality for each month in 1889 and 1890 brings out these ravages clearly.

In January there were 26,720 deaths, or 25 per cent. more than in 1889.
,, February ,, 12,061 ,, 18 ,,
,, March ,, 6,967 ,, 9 ,,

In January the number of deaths was over 100,000, a number which had never before occurred since the war. Towns have suffered more than the country, and Paris seems to have been the most sorely tried. But, we say again, this state of affairs is only momentary, and, unless some catastrophe or new epidemic comes on, the year 1891 promises better—that is, from a demographic point of view.

Let us end this review by a comparison between the births and deaths. For every 100 deaths there were 136 births in the Vendée, 132 in the Pas-de-Calais, 127 in the Nord; on the other hand, there were only 63 in the Gers, 65 in the Lot-et-Garonne, 68 in the Tarn-et-Garonne, 70 in the Haute-Garonne.

It is unfortunate that the statistics of the movement of population do not give also the details of emigration and immigration; we should otherwise know if the emigration tendency, which we have already noticed as taking an unwonted development, maintains itself, whereas the immigration from abroad seems to have slackened. We must await the results of the census of 1891, which are now in course of preparation.

In any case, the conditions of the development of our population seem to have become somewhat modified for some years past.

[The following paragraph, attributing to an entirely different cause the deficit in the number of births, is extracted from M. Vannacque's *Report to the Ministry of Commerce on the Movement of Population in France during* 1890, the report, in fact, on which M. Turquan's article is based.]

The number of births has receded from 880,379 to 838,059, which is very nearly the figure of 1871. This decrease must be attributed not only to the decrease in the number of marriages, but also to the after-effect, now experienced, of the crisis undergone by the births thirty-six years ago, a crisis aggravated by a very high mortality in 1854 and 1855 (Crimean war and cholera).

When at any period, a deficit in the number of births, or a very high mortality among the living occurs from some reason or other, we shall find that this deficit is reproduced thirty-five or thirty-six years afterwards (that being the usual period of a generation) in the generation which should in its turn add its annual quota to the number of births. This cause, combined with the irreparable loss of young men carried off in 1870-71, explains to a certain extent the deficit noticed in the births of 1890.

IV.—*Creation and Dissolution of Trades Unions.* By V. TURQUAN. [Translated from the *Monde économique*, 26th September, 1891.]

ALL economists have noticed, and our honourable colleague, M. Georges Michel was one of the first to draw attention to it, in an excellent article published in the *Economiste français* (1st August, 1891), how strong has been the union movement in France during the last few years.

According to the official figures the following table represents the development of these associations, since the law permitting them was passed on the 21st March, 1884:—

	Employers' Unions.	Workmen's Unions.	Mixed Unions.	Agricultural Unions.	Total.
1884	101	68	1	5	175
'85	285	221	4	39	549
'86	359	280	8	93	740
'87	598	501	45	214	1,358
'88	859	725	78	461	2,123
'89	877	819	69	557	2,322
'90	1,004	1,006	97	648	2,755
'91	1,127	1,250	126	750	3,253

At first sight these figures appear significant; the number of unions increases year by year, and it seems as if a day were coming when all the masters would be united to defend their interests against all the workmen who would have joined together against capital, and that all the agriculturists would have combined to impose their own conditions on the unfortunate consumers. This is what these statistics seem to tell us.

But we must take care not to be content with mere figures. We have elsewhere shown that out of four million workmen, scarcely 150,000 are united, and that in many cases the employers, workmen, and agriculturists do more harm than good by combining.

We find a sufficient proof of this in the numerous philanthropic and other institutions that are formed by associations which really have a serious end in view, as we may judge by the museum of social economy established two years ago on the *Esplanade des Invalides*.

But it is precisely these more serious associations which make the least noise, and which excite the fewest strikes and riots. It is the others which we wish to consider here.

Everybody is aware of the existence of those trades unions which are formed, which flourish, and have a definite object, and above all of those which make a great deal of noise, and so to speak, advertise themselves, but we do not notice those which die out. We have here undertaken to consider which are the unions that disappear after a brief existence.

It must be admitted, however, that these, in spite of their unexpectedly large number, do not constitute the majority, for if they did, the number of trades unions would diminish instead of increase, which is contrary to experience.

We have extracted the figures from the *Moniteur officiel du Commerce*, and it appears that no less than 261 dissolutions have been notified to the administration between the 1st January, 1890, and the 1st July, 1891. As there have been 900 new trades unions during the same period, we may fairly say that for every three new associations there is one dissolution.

The 261 unions dissolved consist of 77 employers' associations, 123 workmen's, 5 employés', 4 mixed, and 52 agricultural. The proportions (per 100 similar existing unions) are 7 per cent. for the first, 11 per cent. for the second, and 8 per cent. for the last.

It is therefore amongst the workmen that unions appear both to be formed with the greatest vigour, and also to disappear more rapidly than among the employers.

We have been able to ascertain the life of 120 dissolved unions from the data given in the *Annuaire des Syndicats professionels*, published by the Minister of Commerce. Their average life was, for the agricultural unions, four years; for the workmen's unions, five years; and for the employers', seven years. But this average is exaggerated, and gives a longer vitality than is really the case, for more than half of the dissolved unions had not yet been introduced into the *Annuaire*, which tends to show that the existence of many of them was ephemeral.

It is not without interest also to know how the tendency to dissolve is spread over France. Nearly all the departments have shared in this tendency, but by no means in equal proportions. There have been most dissolutions in *Bouches-du-Rhône* (22), *Haute-Garonne* (15), *Gironde* (14), *Rhône* (12), *Alger* and *Pas-de-Calais* (10), *Meurthe-et-Moselle* and *Nord* (9), *Aveyron*, *Isère*, *Seine*, *Var*, and *Vaucluse* (8).

Except for a few northern departments, which, as they have so many unions, necessarily see some of them dissolved, it is in the south that they have the shortest life. Marseilles, Toulouse, Bordeaux, and especially Algiers are the most noticeable in this respect; doubtless a consequence of the southern temperament.

Notice also, by the way, the relatively small number of unions dissolved in the department of the Seine. This may result, we think, from an insufficiency of data, the number of "still-born" unions, or of those which have not time to make their existence known, being considerable in Paris.

We should also notice in this respect that the dissolved unions, with few exceptions, boast only a small number of members. As a matter of fact, many of them had less than 100, especially among the employers' unions.

According to the *profession* the tendency to dissolve seems very variable, as may be seen by the following table.

1. *Industries.*—

	Unions.		
	Employers.	Workmen.	Mixed.
Textile industry—spinners	–	2	–
Weavers	–	10	–
Extractive industry—miners	–	2	–
Metallurgy	1	10	–
Leather and skins	1	9	–
Wood industry	2	22	1
Pottery and glassmaking	2	4	–
Building	5	14	2
Furnishing	1	7	–
Clothing	2	7	–
Alimentation	2	4	1
Industries relating to science, arts, paper, printing, &c.	4	5	–
Jewellery	2	4	–
Transport	2	5	–
	24	105	4

It is therefore principally amongst the workmen engaged in building, wood work (mostly clog makers and carpenters), and iron industries, especially mechanicians and locksmiths, that we find most dissolutions.

2. *Commerce.*—In the different branches of commerce we find few but employers' unions which have died out. In fact there are as yet very few unions amongst the employed. The only union which has undergone a crisis (the most numerous, it is true) is that concerned with the commerce of alimentation.

Amongst the dissolved unions the principal are bakers: masters' unions, 15, workmen's, 5; butchers, 10; wine merchants, 6. A complete enumeration would be without interest. We ought however to mention particularly the dissolution of associations of provincial journalists (Bordeaux, Le Mans, Nancy).

We will finish this somewhat lengthy enumeration with a few words on the dissolution of agricultural unions, of which, as we have seen above, there have been 52.

These dissolutions—the great majority being in the south, and also (why we cannot say) in the *Meurthe-et-Moselle*—may be thus classified:—"agricultural," 30; "vinicultural," 19; "horticultural" and various, 3. The number of those affiliated to these dissolved unions seems to have been fairly large, especially the *Chambre syndicale des Agriculteurs du Cantal*, which had over 1,000 members.

Such are the different considerations which result from this study of dissolved unions during the last twelve months. They are sufficient to allow of our considering the union movement of the last year or two as by no means formidable, for neither the vitality of the new unions, nor the number of their members, show any threatening increase, as some people at first imagined.

On the whole, with some exceptions, such as amongst railway men and carpenters, and a few others, the great majority of work people are indifferent to the union movement, and do not appear to avail themselves to any great extent of the faculty granted by the law of 1884 to combine against capital; besides which many associations soon fall to pieces.

It will have been noticed what a small number of mixed associations have been dissolved. We have only counted four. This would seem to show that these mixed associations, where employers and employés discuss their common interests peaceably, work much better than those which are only concerned with the interests of labour or capital.

We believe that the future of social questions lies with these mixed associations: it is in their regular working, their rational methods of enrolling members, that we see the peaceable solution, by means of conciliation and arbitration, of the conflicts between masters and workmen. Such will be the conclusion of our statistical article.

V.—*Population of the Earth. Preface and Tables.* By H. Wagner and A. Supan.

After an interval of nine years, the *Bevölkerung der Erde*, formerly edited by Behm and Wagner, now appears for the eighth time, under the supervision of Wagner and Supan. This important work deserves more than a passing notice, and we cannot do better than reproduce here Professor Wagner's preface, in which are recorded the reasons for the delay in its appearance, and the various changes which have been introduced since the last edition. As they cannot fail to be of the greatest interest, we reproduce also the summarised tables, giving the population of the principal countries of the world, according to the most recent information:—

"The publication, *Population of the Earth*, first issued in 1872 by Ernst Behm and myself, has already appeared seven times, the last being in 1882. A considerable portion of the eighth issue was already prepared, when death deprived me of my indefatigable colleague (15th March, 1884). Thereupon the laborious undertaking stopped. I was forced to abandon an endeavour to complete the work, almost ready for press, by myself, the principal reason being that at my residence at Göttingen, in spite of the extraordinarily rich library belonging to the university there, I could not dispose of the mass of materials which flow into the Geographical Institute at Gotha, or which can be procured there.

"Professor A. Supan, who had already, in the autumn of 1884, undertaken the publication of *Petermann's Mitteilungen*, in Behm's stead, was for the first few years not in a position to devote himself also to the *Bevölkerung der Erde*. That work, which even in his lifetime has been called the great undertaking in the domain of literature, demanded in the first place the whole of his working powers, since he was obliged to draw up personally nearly the whole of the discussions. As soon as he had succeeded in getting a sufficient number of colleagues, and thus brought the undertaking into good working order, he took over in 1889 the editing of the statistics of population, commerce, finance and trade in the *Gothaer Hofkalender*, as had been done in the time of E. Behm, and then the preliminaries for the resumption of the *Bevölkerung der Erde* were arranged.

"Consequently the eighth issue of this publication appears now after an interval of nine years. It is on this account that the title which it had till now of an annual publication, has been changed to a periodical one.

"In the opinion of both of us, there was no reason to change in any material degree the general idea of the whole work. We have never had the slightest doubt that we ought to give a simple tabular arrangement of the area and population of all the states and countries of the earth, based on the most recent information or returns. Such a research has in the interim been made by Emile Levasseur in the *Bulletin de l'Institut International de Statistique* (vols. i and ii, Rome, 1886 and 1887), under the title, *Statistique de la superficie et de la population des contrées de la terre.* We have carefully carried out our intention of thoroughly scrutinising all the statistical information which could possibly be obtained on area, population, and changes of dominions, and, besides a competent treatment of the material, to lay before the reader the accepted opinion concerning their trustworthiness or probability.

"If the continuity of this work is to be preserved, all the new material available since 1882 must be thoroughly tested and worked up. There is such an abundance of this material that the present issue has been restricted to area and population, together with notices of the changes in governments. A volume which will be devoted especially to statistics of places will shortly follow.

"With regard to the contents in general, the individual sections form a natural sequel to the information contained in the seventh issue (1882). We have constantly gone back to older times, when it was necessary, to clear up some doubtful historical point about a territory. Thus the new figures, wherever possible, are compared with the old figures and estimates, and we have often referred to former editions. For the rest, the present issue takes, with regard to the completeness of the information, a similar position to that of the second edition of 1873.

"Greater care has been devoted to the data on the areas of States, territories, countries, and continents. Attention may be especially drawn to the measurements of Asia carried out by B. Trognitz, as far back as 1884, which it is true were already contemplated in 1872, but which can only now be given for the first time. The results affect our knowledge of the total area of the continents of the earth in no insignificant degree. Similarly South Africa, and Central and South America have been remeasured by Trognitz. For Europe and the remote regions of Asia it was necessary to lay down the positions in accordance with the measurements carried out at so great a sacrifice by General Strelbitsky. The interest of European governments concerning the definite settlement, hitherto much neglected, of the area of territories has increased in a satisfactory manner. Hence there are very few figures taken directly from former editions.

"Concerning the figures for the population, the task of the editors is naturally entirely different, since it is a question of countries and colonies having either statistics of population more or less perfect, or those for which one can only be referred to estimates. If, in respect to the first, this work is to be of the nature of a register of the data herein given, we must first of all take into account all the results of censuses which have occurred between 1882 and 1891. To a very considerable extent we can already give the provisional results of the most recent censuses of 1890-91, although most of them only find a place in the supplement. These prove once again how untrustworthy are the so-called estimates deduced from the movement of the population, even in such States as possess a fairly perfect system of registration. Still one will seldom be in a position, when dealing with countries where periodical censuses under government supervision are held, however doubtful they may be, to replace their results by estimates of one's own. But nearly half the inhabitants of the earth, if we include China, must still be determined in this manner. As with time we arrive at far more certain data on which to base estimates of this kind for many countries, we can still only obtain plausible results through a geographical method, *i.e.*, by dividing up into the smallest possible sections the territory to be estimated, and by localising strictly each individual estimate. It is in this sense that, in the present issue, the results of a series of special researches are placed before the reader, which have been given with the same completeness, until now, for only a few countries. I refer more especially to the complete revision of the whole section relating to Africa, by Professor Supan, in which the thorough review of the different colonial treaties should be especially welcomed; as also to Turkey (European and Asiatic), Arabia, the Chinese empire, the East Indian Islands, &c. Sometimes the results tend to confirm former figures, sometimes they differ essentially. Personal opinions must reflect themselves in the treatment of such cases.

"The following retrospect may not be out of place here. In former numbers the contributors of each section were not given by name. In reality, though, there were no strictly defined limits as to the work done by E. Behm and myself. The first, through whose hands passed the whole of the literature of travels and the transatlantic publications, restricted himself mostly in the earlier editions, besides Africa, his particular domain, to Australia and the greater part of Asia (nearer Asia, the Chinese empire and Japan). After 1876, when the editorship of the *Statistical Year Book* in the *Almanach de Gotha*, passed from my hands to his, he undertook also most of those countries whose population statistics were more or less reliable. America, the Russian Empire, British India, the

East Indian Archipelago and Polynesia, were, however, principally retained by me.

"To the present editors, however, although of the same opinion as to the fundamental principles of the treatment, a sharper definition of the subjects to be treated by each, seemed more suitable, partly because by this means the collection of materials was simplified; partly, and more especially, because by this method the outward responsibility of the one and the other is more strictly circumscribed. The different place of residence, moreover, renders difficult the explanation of questions of detail. As will be seen from the table of contents, Professor Supan is the author of the sections on Africa, America, Australia, the Islands and the Polar regions; also the tables on the colonies come mostly from his pen. I, on the other hand, undertook the working up of Europe and Asia.

"From the geographical point of view, which has already manifested itself in the choice of the data—absolute population and density—more care than has hitherto been given is devoted to the arrangement of the tables. If it is not possible here to entirely replace the administrative by geographically bound districts, yet a certain amount of grouping or analysing of the larger provinces according to natural boundaries, especially according to the density of the population, can give some aid to the necessity of the anthropological geographer, for whom this work is in the first place intended.

"The separation of the oceanic islands from the continents, with which they were formerly reckoned, also demands notice. It is not made on account of marked morphological or even biological characteristics, but simply because it is more convenient.

"We would also lay stress especially, as we have often done before, notably in the second edition (1873, p. 1), upon the fact that this cannot be a critically sifted collection of details on area and population statistics, with their accurate arrangement in groups and tables, whose clearness makes it easy to answer at once scientific questions on morphology or anthropological geography.

"Lastly, concerning the collective results of this compilation, the following considerations will serve as an explanation. The totals for the whole population of the earth in our publication of 1872 (originally intended to be 1866, in which year E. Behm first made his researches on doubtful estimates) until 1880 were constantly on the increase. Starting from a total of 1,350 millions (*Geographical Year Book*, i, 1866), we had reached in 1880 a figure of 1,456 millions. Our resolve in 1882 to depart from the result of the so-called census of 1842 in China, and to take 350 instead of 405 millions as its population, caused the result of the compilation of 1882 to fall to 1,434 millions. This time the final result gives 1,480 millions, which differs only in an insignificant degree from the result of E. Levasseur, namely, 1,483 millions in 1886. The last named, it is true, took 382 millions for China proper, and 197 millions for Africa, so that the correspondence is in reality only apparent. Concerning the trustworthiness of the results, an improvement may be noted:—

"(*a.*) In 1880 I reckoned at 626 millions the number of the inhabitants of the earth which could be given as the results of real censuses and estimates based thereon, or at least estimates based on the registration of a population extending over a long series of years (*e.g.*, Russia). This corresponded to about 44 per cent. of the whole 1,401 millions in 1880 (*i.e.*, 1,456 millions, as mentioned above, minus the 55 millions wrongly attributed to China). The population of the same countries (which will be found set out in detail on pp. 5 and 6, sixth edition) has in the meanwhile increased to 757 millions, that is by 111 millions. For the most part we have here to deal with an actual increase during a period of from ten to fifteen years (in Europe alone this amounts to 41 millions); in other countries this increase is only apparent, as for instance in the different territories of British India, where instead of an old and defective census, the results are taken of a recent and more careful enumeration.

"(*b.*) A further 85 millions in the summary of 1880 which we could only put in from more or less accurate estimates, appear this time in the former category as the results of real censuses or of strict government registrations, and in fact with a total of 99 million souls. They are the following:—Servia, Bosnia, Bulgaria, Eastern Roumelia, a great part of the so-called native States of British India (Baroda, Hyderabad, Central Provinces, Rajputana), and lastly Japan, besides smaller States.

"Accordingly the number of the inhabitants of the earth which can be considered as established in 1891 by the results of censuses, &c., may be taken as 836 (737 + 99) millions, *i.e.*, from 56 to 57 per cent. of the whole population estimated at 1,480 millions; this can certainly be described as a not unimportant improvement. True, it must not be overlooked that in this number is included the Russian empire, in which a general census, in the modern acceptation of the term, has never (except in a few individual provinces) been taken.

"(*c.*) If, despite this increase of 125 (111 + 14) millions given by the above figures, the total result of the calculation for the year 1891 only surpasses that of 1880 by 79 millions (1,480—1,401), this is accounted for by the reduced estimates which the new editors saw themselves obliged to adopt consequent upon a renewed examination. The remaining 690 millions of 1880, which we have now to consider, figure here only as 644 millions. Of this difference no less than 38 millions fall upon Africa, whose population Professor Supan found to be only 164 millions, against the 202 millions (without Madagascar) to which E. Behm adhered. In Asia I have myself been obliged to adopt reductions amounting to about 15 millions (see especially the Chinese dependencies, further India, Arabia), which however can be set off against a surplus of about 7 millions in the other countries. The remainder is distributed amongst the various smaller countries."

The Population of the Earth Amounts to about 1,480 MILLION *Persons.*

Divisions of the Earth.	Area, Square Kilometers.	Population.	Density per Square Kilometer.
Europe (*without Iceland, Nova Zembla, and Atlantic Islands, &c.*)	9,729,861	357,379,000	37
Asia (*without the Polar islands*)	44,142,658	825,954,000	19
Africa (*without Madagascar, &c.*)	29,207,100	163,953,000	5
America (*without the Polar regions*)	38,334,100	121,713,000	3
Australia (*with* Tasmania)	7,695,726	3,230,000	0·4
Oceanic islands	1,898,700	7,420,000	4
Polar regions	4,482,620	80,400	—
Total	135,490,765	1,479,729,000	11

EUROPE

according to Administrative Boundaries, but without Nova Zembla, Iceland, the Azores, Madeira, and the Canaries.

States and Territories.	Area, Square Kilometers.*	Population.	References.†	Density per Square Kilometer.
I. CENTRAL EUROPE	1,327,633	105,851,000	—	80
German empire (*without the Lake of Constance*)	540,419	49,424,135	C 1890	91
Gulfs of the Baltic Sea	3,446	—	—	—
Austria Hungary (*without the Lake of Constance*)	625,518	41,284,966	C 1890	66
Bosnia and Herzegovina	51,110	1,336,091	C '85	26
Liechtenstein	159	9,593	C '86	—
Switzerland (*without the Lakes of Constance and Geneva*)	40,820	2,933,334	C '90	72
Lake of Constance (539) and Geneva (578)	1,117	—	—	—
Luxemburg	2,587	211,088	C 1890	82
Netherlands (*without the Zuyder Zee*)	33,000	4,558,095	E '90	138
Belgium	29,457	6,093,798	E '89	207
II. NORTH WESTERN EUROPE	1,130,099	46,847,000	—	41
Denmark	38,279	2,172,205	C 1890	57
Faroe Islands	1,333	12,954	C '90	10
Sweden	450,574	4,774,409	E '89	11
Norway	325,285	1,999,176	C '91	6
Great Britain and Ireland (*with the islands in the* British seas)	314,628	37,888,152	C '91	124

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* "All planimetrical measurements which we have ourselves worked out, and which we have used in the tables, are based on the *zone tables* (see *Geographical Year Book*, iii, 1870), which correspond to Bessel's spheroidal form of the earth."

† C = census; E = estimate based on censuses; R = estimate based on registration returns.

EUROPE—*Contd.*

States and Territories.	Area, Square Kilometers.	Population.	References.	Density per Square Kilometer.
III. SOUTH WESTERN EUROPE (*Roman Europe*)	1,410,473	90,157,000	—	64
France	536,408	38,218,903*	C 1886	71
Monaco	22	13,304	C '88	—
Andorra	452	6,000	—	13
Spain (*without the Canaries*)	497,244	17,246,688	C 1887	35
Gibraltar	5	24,696	E '89	—
Portugal (*without Madeira and the Azores*)	89,372	4,306,554	C '81	48
Italy	286,588	30,158,408	E '90	105
San Marino	59	7,920	E '89	—
Malta	323	174,621	E '89	—
IV. SOUTH EASTERN EUROPE	525,872	18,482,000	—	35
Greece	65,119	2,217,000	C 1889	34
European Turkey (*with* Crete)	168,533	5,600,000	—	32
Bulgaria and Eastern Roumelia	96,660	3,154,375	C 1888	33
Novibazar	7,350	153,000	—	20
Bosnia and Herzegovina (*see under* I)	—	—	—	—
Montenegro	9,080	200,000	—	22
Servia	48,110	2,157,477	C 1891	45
Roumania	131,020	5,000,000	—	38
V. EASTERN EUROPE	5,335,784	96,042,000	—	18
European Russia (*with* Poland *and without Nova Zembla*)	4,924,567	93,703,331	R 1888	19
Finland	373,612	2,338,404	R '89	6
Sea of Azov	37,605	—	—	—
Europe	9,729,861	357,379,000	—	37

* Legal population. Actual population, 1891, preliminary return: 38,095,156.

ASIA.

I. SIBERIA (*without the polar islands*)	12,488,348	4,314,000	R 1885	0·3
II. RUSSIAN CENTRAL ASIA AND TURKESTAN	4,342,315	7,107,000	—	1·6
Russian Central Asia and Transcaspia	3,504,908	5,327,000	R 1885	1.5
Sea of Aral and Caspian Sea	506,407	—	—	—
Khiva	60,000	500,000	—	8
Bokhara	205,000	1,250,000	—	6
Pamir Territories	66,000	30,000	—	0·5

ASIA—*Contd.*

States and Territories.	Area, Square Kilometers.	Population.	References.	Density per Square Kilometer.
III. SOUTH WESTERN ASIA	7,522,442	38,365,000	—	5
Russian Transcaucasia	472,554	7,285,000	R 1885	15
Asiatic Turkey (*without the Sinai peninsula*)	1,778,168	15,475,000	—	9
Peninsula of Sinai (*to Egypt*)	59,000	4,147	—	?
Cyprus	9,601	209,291	C 1891	33
Arabia (not belonging to Turkey)	2,505,119	2,272,000	—	0·9
Persia	1,645,000	7,500,000	—	4·5
Afghanistan	550,000	4,000,000	—	7·5
Kafiristan and Hindoo Koosh	71,000	600,000	—	8
Beluchistan and Afghan-Indian frontier territories	432,000	1,020,000	—	2·4
IV. CENTRAL AND EAST ASIA	11,716,736	412,357,000	—	35
China proper	4,004,650	350,000,000	—	90
Manchuria	942,000	7,000,000	—	7
Interior territories belonging to China	6,169,000	4,500,000	—	0·7
Hong Kong and Macau	91	266,000	E 1885–89	—
Corea	218,650	10,519,000	1883	48
Japanese empire (*without the Bonin Islands*)	382,345	40,072,020	R 1889	105
V. INDIA	3,942,173	285,677,000	—	73
British India (*without the Iranian Territories and Further India*)	3,655,730	278,582,000	C 1891	76
French and Portuguese Indies	4,167	797,000	C 1881–91	191
Ceylon (*with the* Maldives)	64,276	3,038,000	C 1891	47
Himalayan States	218,000	3,260,000	—	15
VI. FURTHER INDIA	2,126,451	38,676,000	—	18
British Lower and Upper Burmah	414,951	7,554,000	C 1891	18
Lushai, Kachin, and Shan States of Burmah	321,300	2,000,000	—	6
Karennee	10,700	50,000	—	5
Siam	800,000	9,000,000	—	11
Straits Settlements and dependencies	90,000	1,158,000	E '89 (in part)	13
French Further India	489,500	18,914,000	E (in part)	39
VII. EAST INDIAN ISLANDS	2,004,193	39,458,000	—	20
Andaman and Nicobar Islands	8,270	28,000	C and E	3
Sunda and Molucca Islands	1,699,741	32,430,000	E '88 (in part)	19
Philippine and Sulu Islands	296,182	7,000,000	E 1887	23
Total ASIA	44,142,658	825,954,000	—	19

AFRICA.

States and Territories.	Area, Square Kilometers.	Population.	References.	Density per Square Kilometer.
I. NORTHERN AFRICA	3,564,400	21,189,500	—	7
Spanish Possessions	812,300	15,798	C 1887	10
Marocco		8,000,000	—	
Algeria	667,100	3,855,700	C 1886	6
Tunis	116,300	1,500,000	1883	13
Tripoli	1,033,400	1,000,000	—	1
Egypt	935,300	6,818,000	C 1882	7
II. SAHARA	6,180,400	2,500,000	—	0·4
III. NORTH TROPICAL ZONE	10,302,900	104,756,000	—	10
Tropical North East Africa	4,578,200	28,422,000	—	7
Central Soudan	1,548,100	27,300,000	—	18
West Soudan and Upper Guinea	2,159,900	33,034,000	—	16
Equatorial Zone	2,016,700	16,000,000	—	8
IV. SOUTH TROPICAL ZONE	7,842,150	31,960,000	—	4
Congo State	2,241,250	14,100,000	—	6
Angola	1,339,450	12,400,000	—	9
Lake Nyassa	26,500	—	—	—
,, Tanganyika	35,620	—	—	—
German East Africa	955,220	2,900,000	—	3
Zanzibar	2,560	210,000	—	82
Mozambique	801,970	800,000	—	1
Zambesi territories	1,604,480	1,350,000	—	0·8
German South Western Africa	835,100	200,000	—	0·2
V. EXTRA-TROPICAL SOUTH AFRICA	1,317,230	3,547,700	—	3
South African Republic	294,300	679,200	C 1890	2
Orange Free State	130,700	207,503	C '90	1·6
Swazi and Tongaland	21,510	91,000	—	4
British possessions	870,720	2,570,000	C & E '89-91	3
Total AFRICA	29,207,100	163,953,000	—	5

AMERICA.

I. NORTH AMERICA	19,810,200	79,656,000	—	4
Dominion of Canada	7,990,700	5,075,855*	E 1889	0·6
Newfoundland (*including* Labrador)	421,470	197,332	C '84	1·7
French possessions	235	5,983	E '88	25
Canadian Lakes	238,971	—	—	—
United States	9,212,300	62,981,000	C 1890	7
Mexico	1,946,523	11,395,712	E '90	6
II. CENTRAL AMERICA	547,308	3,231,400	C 1870–89	6

* Canada, 1891, preliminary return: 4,829,411.

AMERICA—*Contd.*

States and Territories.	Area, Square Kilometers.	Population.	References.	Density per Square Kilometer.
III. West Indies	244,478	5,482,800	C & E (part)	22
IV. South America	17,732,130	33,342,700	—	2
Venezuela	1,043,900	2,238,900	E 1888	2
Guyana	437,600	373,900	E 1888-89	0·8
Brazil	8,361,350	14,600,000	E 1888	1·7
Paraguay	253,100	330,000	E '86	1·3
Uruguay	178,700	711,700	E '88	4
Argentine Republic	2,789,400	3,203,700	E '87	1·2
Chili	776,000	3,165,300	E '89	4
Bolivia	1,334,200	1,434,800	E '89	1
Peru	1,137,000	2,980,000	C 1876 (part)	2·6
Ecuador	299,600	1,204,400	C '85 (part)	4
Columbia	1,121,280	3,100,000	C 1870, 1884	2·8
Total America	38,334,100	121,713,000	—	3

AUSTRALIA.

I. Continental Australia	7,627,832	3,173,000	—	0·4
Queensland	1,730,721	422,776	E 1890	0·2
New South Wales	799,139	1,170,000	E '90	1·3
Victoria	229,078	1,148,003*	E '90	5·0
South Australia (*including* Northern Territory)	2,341,611	331,056†	E '90	0·14
West Australia	2,527,283	46,290	E '90	0·02
Natives (all Australia)	—	55,000	—	—
II. Tasmania	67,894	156,622‡	E 1890	2·2
Total Australia	7,695,726	3,330,000	—	0·4

* Victoria, 1891, preliminary return: 1,137,272.
† South Australia, 1891, preliminary return: 315,048 (exclusive of the Northern Territory).
‡ Tasmania, 1891, preliminary return: 146,667.

OCEANIC ISLANDS.

I. South Sea Islands	1,262,900	2,454,600	—	2
New Guinea group	807,956	837,000	—	1·1
Melanesia	145,892	642,300	E (in part)	4
New Zealand group	271,067	673,500*	E 1890	2·5
Micronesia	3,540	94,100	C (in part)	26
Sandwich Islands	17,008	92,050	E 1889	5
Polynesia	17,437	115,600	E (in part)	7
II. Islands in the Indian Ocean	603,718	4,139,900	E & C (in part)	7
III. Atlantic Islands	32,082	825,357	C & E '81-87	26
Total Oceanic Islands	1,898,700	7,420,000	—	4

* New Zealand, 1891, preliminary return: 668,181.

POLAR REGIONS.

States and Territories.	Area, Square Kilometers.	Population.	References.	Density per Square Kilometer.
I. NORTH POLAR REGIONS	3,825,620	80,400	—	—
Arctic America	1,301,080	1,000	—	—
Greenland	2,169,750	10,221	E 1888	—
Iceland	104,785	69,224	E '88	0·7
Uninhabited islands	250,000	—	—	—
II. SOUTH POLAR REGIONS	657,000	—	—	—
Total POLAR REGIONS	4,482,620	80,400	—	—

VI.—*Notes on Economical and Statistical Works.*

The Modern Factory System. By R. Whately Cooke Taylor. London: Kegan Paul, Trench, Trübner, and Co., 1891.

There are few, if there are any, more important chapters of English industrial history than that which contains the record of the introduction of the modern factory system; and there are also, it must be added, few chapters which are more gloomy and distressing to read. In the volume before us Mr. Taylor has brought into due prominence both these characteristics. He has not shrunk from giving a faithful picture of the vast and undoubted evils, which accompanied the early days of the modern factory system, before the introduction of factory legislation; and he has also endeavoured to delineate with an accurate pencil the essential features of that system. His present book forms a sequel to one entitled an *Introduction to a History of the Factory System*, and throughout it he casts, as he says in his preface, "occasional backward glances at conditions of life and labour long ago." But for the most part the two books travel over different ground; and the later volume is devoted in the main to a detailed history of the various stages of development in the *modern* system. In the course of this narrative Mr. Taylor succeeds in introducing, as it appears to us, a more minute and accurate distinction between phenomena, which had sometimes before been confused with one another, and he establishes, or at least suggests, some novel and important considerations. Thus the essential characteristics of the modern factory system are brought out by a careful comparison with the systems which it followed or superseded, and the evils, which attached to its early beginnings in consequence of the peculiar combination of circumstances under which it was introduced, are shown to be, to some extent at any rate, of an accidental nature.

In the first chapter a sketch of the "industrial revolution," which marked the introduction of the new system, is given. But the system itself, although, as Mr. Taylor observes, it "first began to be naturalised" in England towards the close of the last century, in the dawn of the industrial revolution, had been "introduced fully three quarters of a century earlier, and had long been preceded" "by similar systems of combined labour." "The new form of industry," he declares, "was only new in certain of its parts." "What was actually new were unprecedented combinations" of its different elements "under new conditions," such as the "employment of the motive power of steam," and "provision of automatic machinery," and the "individual freedom of the workers." Before the introduction of the system in its modern shape there had been "isolated factories" and "isolated handicraftsmen," and there had been a system of "domestic manufacture," undertaken as a "subsidiary" industry to "yeoman farming," into which capitalistic methods had so far crept that merchants and dealers provided the materials for the domestic establishments and sold the manufactured goods. "The domestic system was to a great extent the bridge which united the other two;" and it "has now almost altogether vanished." It raised the "unit of production from the individual to the family." With the introduction of machinery, however, the "separation of the worker from his work, which the increasing division and combination of labour had already fostered" in the early factories existing side by side with this domestic system and with the isolated handicraftsmen, was carried further. He did not now "contribute a definite part to the general result, but merely watched mechanical appliances doing so;" and, after no long interval, "new means were introduced for setting those appliances in motion." With this the industrial revolution was complete, the capitalist became predominant, and the spirit of competition pervaded the whole atmosphere.

In his second chapter Mr. Taylor traces the "rise of the modern factory system," supplying some interesting illustrations of the earlier types of factory, and showing how side by side with these grew up the domestic system. The elaborate and restrictive regulations of the guilds and corporations in the towns drove the foreign artisans, who were continually coming over to England, to settle in the country villages; and the "subsidiary" nature of their industry led them to places where they could engage in yeoman-farming. But the domestic system in its turn gave way in the first instance to small master-manufacturers, as the labour was more divided and combined, and these masters employed journeymen and apprentices outside the sphere of their own family. And they again paved the way for the modern factory system. The silk mill built at Derby by the brothers Lombe in 1719 was the first to deserve the name of a factory in the modern meaning of the term; and there the "motive power was supplied from outside," the "operations" were "performed by machinery," and the "workpeople employed exclusively for wages." In the modern factory system, as Mr. Taylor points out, the processes are performed by machines aided by human labour instead of, as formerly, by men assisted by machines. "It is machine industry; and not industry merely aided by machinery." Mr. Taylor traces in this and the following chapter the successive stages of the change as they have been illustrated in different industries; and he accompanies his account with some pertinent observations. He points to the disregard of æsthetic considerations in the construction of the early English factories, compared with those on the Continent, as a possible cause of the want of artistic taste which we are now endeavouring to supply by means of technical education. He shows how the necessity of bringing operatives from great distances to work in the new factories led to the forcible retention of their services by a system of apprenticeship, and how the appearance of a new motor in the shape of steam seems to have been essential to the full development of the new system, as water, the alternative motor, was uncertain and limited.

In the fourth chapter of his book Mr. Taylor describes what he calls the "environment" of the modern factory system. He shows how in the first instance the staple trade of the country, the woollen industry, settled in the Eastern Counties, where the manufactured commodity could easily be carried to its market across the seas, and the raw material be obtained from the flocks of sheep on the adjacent plains; how, at a later time, it was found to be easier to bring the raw material to the motive power than the power to the material, and factories were raised in Lancashire, Yorkshire, and Cheshire, where the rainfall was greater, and the rapidity with which the streams descended from the hills increased the force available; and how, finally, the steam engine once successfully introduced, it was no longer necessary to go in search of motive power or raw material, but a supply of labour and of subsistence for the motor were more indispensable. Lancashire, Yorkshire, and Cheshire fulfilled, again, these new conditions. He then examines the changes in the modes of transport, in the methods of exchanging products, and in the systems of credit and banking, which accompanied and assisted the new development. He investigates the attitude of the workmen to the new system, which was, as he shows, unfriendly though not unreasonable, and he reviews the condition of foreign and home politics under which the system grew up. The nation was involved, and the attention of its statesmen absorbed, in a foreign war of immense magnitude, which imposed a serious strain on its resources; and the fear of uprisings of the lower orders, occasioned by the French Revolution, combined with the spread of a new industrial philosophy, advocating the non-interference of the State, and emphasising the importance of capital, to mould the temper of society.

In succeeding chapters, accordingly, Mr. Taylor traces, with great minuteness, the history of the successive stages of the agitation which, in the face of these obstacles, persistently asked for, and eventually obtained, factory legislation; but in these chapters he travels over ground which has perhaps been more often trodden before, and the limits of space will prevent us from attempting any but the briefest summary of their contents. In one chapter he describes the nature of the evils assailed and the methods of attack; in another the reasons of defence, as illustrated by an account of the new Political Economy; and, in the third, the results of the contest up till the passing of the first efficient Factory Act. He then proceeds to sketch the progress of the factory system through the last fifty years, which comprise the third of the three periods into which he divides his history. In doing so, he touches on the limits of its possible development, and the indications, in the so-called sweating system and the extension of certain home industries, of a reversion to the older type of domestic industry. The impressions that these home industries are in all cases manual, and that they have never been inspected, are, he points out, equally mistaken. He traces in his ninth chapter the parallel progress of factory legislation; and in the tenth and concluding chapters he considers the results—domestic, sanitary, moral, intellectual, economic, and æsthetic—of the modern factory system. He has, as it seems to us, produced a book of great interest, which will take an important place in the historical literature of English industry; and this result will be due to the nature of the subject and the character of its treatment alike.

The Co-operative Movement in Great Britain. By Beatrice Potter. London: Swan Sonnenschein, and Co., 1891.

This little volume, which forms one of a series entitled the *Social Science Series*, is an opportune and able contribution to the discussion of the co-operative movement. It is opportune, for the movement seems at the present time to be passing through a critical stage; and it is able, not only because Miss Potter gives a clear and full account of the past history, and present extent, of co-operation, but also, in an especial measure, because she is not content to accept any superficial judgment of its aims and tendencies, but is determined to penetrate beneath the surface and to lay bare its reality and essence. A distinction is often drawn between co-operative production and co-operative distribution, and it is frequently urged that those, who are imbued with the true co-operative faith, ought not to rest content with the present position, but to push on from a system, under which the profits of the retail store and the wholesale society are divided between the shareholders and the customers, to a system under which the workers, as such, would receive in the shape of a bonus on their wages a share in the profits of the undertaking. It has, on the other hand, been argued that such a scheme is an endeavour to supersede the employer, and that the difficulty of carrying it out with success is measured by the importance of the part he plays in modern industry; and Miss Potter, by a careful examination of the small number of so-called productive societies which exist, demonstrates this particular point with new persuasiveness. The principle has, she shows, had an infinitesimal success; but she goes further, and attacks the principle itself. This it is which constitutes the novelty of her treatment of co-operation, and, we venture to think, marks the more philosophic and penetrative character of it. She maintains that, in its origin in the mind of Robert Owen, and in its later development, the true co-operative ideal has been misunderstood by many observers. The principle of dividing profits between shareholders and customers, of selling goods at the market price and returning at the end of fixed intervals the difference realised between this and the cost price, not only encourages automatic thrift but, she argues, is in its essence democratic. The advantages of the store are open to the whole world. Anyone may become customer or shareholder, and the interest of the existing members leads directly to the effort to enlarge the business of the store and the consequent communication of its benefits to others. Robert Owen himself wished to abolish "profit on price," and this is practically secured by the quarterly dividend in the retail co-operative societies, and by the arrangements of the co-operative wholesale society. And so the antithesis is not between co-operative distribution and co-operative production. The existing societies produce as well as distribute, and have some considerable manufactories of their own. The opposition lies rather between the democratical principle at present recognised, and the establishment, by means of a bonus on wages, or a division of the profits among the workers, of a privileged aristocracy of select workmen, whose natural tendency will be to exclude others from sharing in the advantages which they themselves enjoy. This argument is urged with very great cogency by Miss Potter; and, although it is certainly not in agreement with the common ideas of the general public, or with the belief of many of the past or present advocates or adherents of the movement, it appears to be of even greater value than the picture which she draws of its early history, and its steady, and astonishing, development. This part of her work has been executed before, though rarely with such ability and attractiveness, by other writers; but the other part is as original as it is suggestive.

Studies in Jewish Statistics, Social, Vital, and Anthropometric. By Joseph Jacobs. London: D. Nutt, 1891.

In this small volume Mr. Jacobs has collected together some interesting statistical inquiries concerning the Jewish people; and at a time when that anti-Semitic movement, to which he refers in his preface, is occasioning so much deliberate misrepresentation or ignorant misunderstanding, the evident care with which he has arrived at his conclusions, and the thorough manner in which he sets forth the reasons for them, are very welcome characteristics. Some of the studies have already appeared in the *Jewish Chronicle*, and some in the *Journal of the Anthropometric Institute.* In the first set of papers Mr. Jacobs considers the proportion and the consequences, so far as they can be ascertained, of consanguineous marriages among the Jews, the social condition of the Jews living in London, the nature of the "foreign contingent," the character of the occupations of the Jews, both abroad and in London, their position in the professions, and certain vital statistics relating to their births, marriages, and deaths. He considers that the popular impression of the larger number of consanguineous marriages among the Jews is justified by statistics relating to the English Jews of the upper and middle class, but that the effects which are generally attributed to such marriages, in the shape of deaf mutism and idiocy, cannot be proved to have resulted in the case of the Jews. The popular idea of their wealth, when tested by figures, is forced to give way, and, "if we choose to regard them as a nation, it is probable that they are the poorest of all that can claim to be civilised." The "foreign contingent" is responsible, at least on its arrival, for a large part of the poverty of the London Jews; but it now consists to a preponderating extent of Poles, instead of, as formerly, Dutch, who, unlike the Poles, rarely raised themselves out of the status of paupers. As respects their "occupations," social and religious causes—the disabilities to which they have been subjected, and the desire to secure freedom for observing the Sabbath, and for keeping their festivals, on days regarded as working-days by the nations amongst whom they have settled—have exercised important, and probably preponderating, influence. Thus they have been driven into the towns because they could not hold land, and they have become tailors because the workers at this occupation can arrange their hours of labour and leisure as they please. But they have also, in spite of anti-Semitic statements to the contrary, engaged with success in handicrafts, although it is true that a "remarkably large percentage follow commercial callings," and "a greater proportion of Jews" is found "in the professions." Especially is this the case with the profession of medicine abroad, and in 1880 374 of the 1,097 doctors in Vienna were said to be Jews. Their marriage-rate is apparently less than that of the general population, and so is their birth-rate, but Mr. Jacobs believes this to be due to their lower rate of mortality. The age of marriage among them is usually earlier, and the proportion of widows and widowers is less. The average number of children to a marriage is "almost invariably greater," and there is a "remarkable predominance of boys," while the rate of illegitimacy is "considerably lower." In an appendix to the studies reprinted from the *Jewish Chronicle*, Mr. Jacobs gives two papers read before the Anthropological Institute, one on the "Racial Characteristics of Modern Jews," and the other on the "Comparative Distribution of Jewish Ability." Many of the characteristics attributed to racial influence may, he thinks, be more appropriately ascribed to social and political conditions. The supposed benefits of their dietary laws in producing longevity and increasing vitality cannot, he maintains, be regarded as very considerable. Anthropometry shows, on the other hand, that the Jews are the "shortest and narrowest" of "Europeans (excepting, perhaps, Magyars as regards the former" characteristic), that they are predominantly brachycephalic, that they are darker in hair and eyes, and that they have distinctive features of nose and lips. Historically they are, he argues, comparatively pure, and "the vast majority of contemporary Jews are the lineal descendants of the Diaspora of the Roman empire." To determine the "comparative distribution of Jewish ability" he applies a method employed by Mr. Francis Galton, and he arrives at the conclusion that in the first class of intellect, determined according to this method, as many as four Jews—Lord Beaconsfield, Heine, Lassalle, and Mendelssohn—can be named in the last hundred and fifty years, when one and a half might be expected according to the

English standard. In the second class 25 are to be found where we might have looked for 22, but in the third the Jews show only 99 to the English 223. This last result is, he considers, due to the serious disabilities under which they suffer in Russia and Roumania at the present time, and the recent date of the removal of these disabilities in other countries. A reason, on the other hand, for their intellectual superiority may be discovered in their residence in towns, and their consequent addiction to commercial pursuits, which demand head rather than hand labour; and another reason may be found in the care which they habitually bestow on the education of their children.

Fifth Annual Report of the Commissioner of Labor, 1889. Washington: Government Printing Office, 1890.

This report, although it is styled the fifth annual report of the Commissioner of Labor, is, as Mr. Carroll D. Wright states in his "letter of transmittal," the first report issued from the department, over which he presides, under its new designation, which has now been substituted for the original description of "Bureau of Labor." It represents, he adds, rather a bye-work of the Department than its chief occupation; and he asks for an increase in the force of officials working under his direction. He truly observes that "it is absolutely necessary that the best skill" should "be employed in the operations of his office;" and he states that he has already "been able to secure the services of some exceedingly expert practical statisticians," while in this particular inquiry the managers of the railroads have, with few exceptions, allowed "free access to their vouchers and pay accounts," and "in many instances" have, "without hesitation," "forwarded their yearly pay rolls for tabulation." "This action on the part of railway officials," he declares, "indicates the increasing confidence of the public in the integrity of official statistics." In an introduction to the report the scope and aim of the inquiry are briefly described. The purpose of the investigation "was to find out as accurately as possible the relations of railway employés and the corporations under which they work, the wages paid in all branches of the service and in different parts of the country, and the time lost as well as other matters of vital interest to railway employés." The inquiry was divided into two parts, and the relations of employers and employed were investigated by means of a special schedule of inquiry by the agents of the Department, while the "time and earnings of the employés were taken directly from the pay rolls." Sixty of the six hundred or so railroads in the United States were selected as representative of the different districts of the country and the varieties of labour, and these sixty roads employed some 241,910 individuals. The statistical results of the inquiry are given in five general tables, of which the first refers to ten representative roads. In this table the number of days each employé was actually employed during one year, the daily rates at which he was employed, and the classified earnings for a year, are shown by occupations. In Table II all the facts of the preceding table are summarised for the whole sixty roads. "grouped as to rates." In Table III a similar *condensed* summary is given; and in Table IV another summary, showing also "percentages of employés by groups of rates," while in the fifth and last table the times and earnings are "reduced to averages for each occupation in each of the whole number of roads covered by the investigation." "The accuracy of the statistics," the report states, "cannot be doubted, for the facts as to wages have in each case been taken from the pay rolls of the roads." In chapter ii the relation of employers and employed are briefly described, and in chapter iii an analysis is attempted of the general tables, which are contained in chapter iv. The restrictions placed on the use of intoxicating liquors, which is prohibited by as many as 370 companies, the provision of dwelling houses, the establishment of "beneficiary institutes," which is claimed expressly by only nineteen roads, the position as regards legislation in the States compared with that in operation in England on the question of the liability of employers for personal injuries to their employés, are among the subjects handled in the second chapter.

Sixth Annual Report of the Commissioner of Labor, 1890. Washington: Government Printing Office, 1891.

The sixth annual report of the Commissioner of Labor deals in three parts with the important but difficult questions of the "cost of producing iron and steel, and the materials of which iron is made, in the United States and in Europe, and the earnings, the efficiency, and the cost of living of the men employed in such production." The investigation is made in pursuance of the Act of Congress under which the Department of Labor was constituted. This Act provided that such an inquiry should be directed to articles which were liable to duty; and it was necessary to select articles on which a duty of a considerable amount was levied, and for which "a clearly defined and standard unit could be established." A comparison with this dual test suggested the suitability of iron and steel, and the materials of which iron is made, the textiles, and glass; and in these three parts the results obtained for the first three of the five selected kinds of articles are given. Part i is devoted to the cost of production, part ii to wages and the efficiency of labor, and the third and most bulky part to the cost of living of the labourers. From the outset it was determined to "make the investigation as broad as possible," and the schedules, in which the information obtained was to be arranged, were carefully "formulated on the advice of practical manufacturers." The general result, although it may "not reach the statistical ideal," "can," the report states, "be honestly designated a statistical triumph;" and this is due to the increasing willingness of manufacturers to furnish information in response to governmental inquiry. No less than 618 establishments supplied the facts needed for the compilation of the report; and the great difficulties, which have been encountered, have, it seems, as a rule been "inherent in the very conditions of the case," and have not arisen from "indisposition" to render assistance. The Department adopted the plan of sending experts and agents directly to the producer in preference to that of collecting information by correspondence; and it traces the success of the inquiry largely to this decision. The correspondence method, it declares, "has, with rare exceptions, been a failure," and the advantage of the other method is "that a well-informed man on the spot can answer all objections and show clearly all advantages." And, accordingly, it maintains that "in general the fullest confidence can be placed in the trustworthiness of the report." "It is weak here and there, especially in the steel rail industry, where information could less readily be obtained," but "the number and distribution of establishments" reporting is, it holds, "adequate to establish the representative character of the report," which contains the results of inquiries in "all parts of the United States where iron and steel are produced, in Great Britain, and in the iron and steel producing countries of the continent of Europe."

Part i of the report is devoted to the cost of production; and this is defined as the "expense" of production. From the term, for various reasons, are excluded interest, insurance, depreciation of the value of plant, royalty paid to the owners of the soil, and charges for freight of the product to the place of free delivery; although information has been obtained on these points from some manufacturers, and separately tabulated. But for the purpose in hand only those elements of cost are considered which are "universal, positive, and absolutely essential, that is, those elements of cost that are common to all producers and" "must be borne in order to bring out the completed product." For pig iron the United States are divided into two districts, northern and southern, but for other articles they are treated as one, while Europe is throughout separated into Great Britain on the one hand, and on the other the Continent, including Germany, Belgium, France, Italy, and Spain. Statistics of the annual volume of production show that "now the United States take first rank among the iron-producing countries, and have a greater output than that of any other country." Great Britain, however, while distanced by America in 1886 and 1887, re-asserted its supremacy as a steel-making country in 1888 and 1889, and "now excels as a steel-producer because of her large annual production of open-hearth steel." In the production of coal, one of the materials for the manufacture of pig iron, the States are "only surpassed" by Great Britain, and in the production of iron ore, another material, they are "nearly abreast." "There are now three great iron and steel producing countries," Great Britain, the United States, and Germany; but, the report declares, "Great Britain, while fast losing her leadership in the manufacture of iron and steel, and sharing it with the United States and Germany, is destined to remain a powerful competitor with all iron and steel producing countries, both in their own and in neutral markets." In the general tables each particular industry is taken in turn and separately examined by districts, and, in the case of pig iron, for example, the tables refer to (A) the period covered and the quantity of product, (B) the appliances of production, (C) the assemblage of the materials, (D) the chemical analyses of the ore, (E) the quantity and cost of materials charged into the furnace, (F) the proportion of materials charged into the furnace, (G) the general statement of cost for the period, (H) the elements of cost in 1 ton of 2,240 lbs., (I) the percentage of each element of cost in 1 ton of 2,240 lbs., (K) the additional cost of certain theoretical elements (such as interest, &c.), and (L) the additional cost of certain theoretical elements in 1 ton of 2,240 lbs. The tables are preceded and followed by explanatory notes and analytical comments; and the method of investigation, and the defects to which it is liable, are frankly laid bare. In the case of some of the industries, which comprise pig iron, muck bar iron, finished bar iron, miscellaneous iron, steel ingots, steel rails, miscellaneous steel, bituminous coal, coke, iron ore, and limestone, some of the particulars needed in the instance of pig iron are not of course required.

In part ii the time employed, the earnings gained, and the efficiency of the workmen engaged in production, form the subject of investigation. As respects the two former particulars, copies of the pay rolls of 99 of the 618 establishments represented in the inquiry were made, and these serve as the basis of the tables, the period selected usually coinciding with that taken in part i. In successive tables facts relating to what are distinguished as the actual and the theoretical earnings, first in detail for districts and industries, and then grouped by occupations and by industries, are collected and arranged. The theoretical earnings are supplied in two columns, one showing the number of employés, who would be necessary if they worked continuously through the period, to perform the actual days of work given, and the other the consequent average earnings for the period of one such employé; and the object of the columns is to show the great difference between the actual force and the necessary force in establishments, and between what men are actually paid during a fixed time, and what they are theoretically supposed to have gained when only their daily rate of pay is considered. To discover the true daily rate is very difficult, for a man may work at more than one occupation within the period selected for investigation; and, where payment is made by the piece, the pay rolls sometimes show only the amount paid, and not the time, or perhaps even the number, of pieces which it represents. The methods adopted for meeting such difficulties are accordingly explained in the prefatory remarks to the tables. The concluding portion of part ii is devoted to the efficiency of labour; and here the results for 131 establishments are tabulated, by establishments, and by occupations and industries. The term efficiency of labour is explained as being but another expression for the cost in labour consumption of producing a unit, like a ton of pig iron, that is, the true cost of production. The Department of Labor was, it seems, only partially successful in obtaining similar information from the various districts, for the purpose of comparison, in this portion of the inquiry.

Part iii is devoted to the cost of living, which forms an essential element in the cost of production and in the efficiency of labour. Here the facts were gathered from the heads of families employed in the establishments from which the other schedules were obtained; and budgets, uniform for all industries, were drawn up, showing the constitution of the family, indicating whether they owned the house in which they lived, or hired it or obtained it from their employer, stating, in items, and, where possible, in quantities also, the objects of expenditure, giving the figures of the yearly income of the individual members of the family from all sources: and supplying thus the basis for a comparison of the total cost of living with the total income, and the exhibition of a surplus or deficit, as the case might be. 3,260 families furnished the material for these statistics, and some interesting results, which cannot be noticed here from want of space, were obtained. As a whole the sixth annual report indicates the bestowal of a great amount of industry upon a work of importance, and the statistical student is enabled, by the full and candid statement of the method adopted, to estimate for himself the value of the results obtained. For this statement he will be almost as grateful as for the material collected and placed at his disposal; for some of the American statistical publications previously issued have forfeited merits, which they might otherwise have possessed, from lack of such information.

Statistica. Di Filippo Virgilii. Milano: Ulrico Hoepli, 1891. In the concluding section of his little manual Professor Virgilii expresses his confident expectation that a brilliant future is in store for statistics; and the appearance of his own book is, we think, one reason at least for entertaining such a hope. For it is one of many examples of the fresh interest which is now being taken in many countries in statistical study, and the fact that there is a popular demand for such a manual is in itself encouraging. But the character of the manual affords, we venture to think, still more ground for encouragement, for it endeavours to reconcile scientific precision with popular treatment. It is not intended, of course, to convey any novel information, but it sets forth with systematic order and clearness the scope, aim, and methods of statistical study. In an Introduction such points as the etymology of the word statistics, its definition, object, and method, the classification of its various departments, its limits, utility, and historical development, are briefly discussed. The author adopts the definition propounded by Professor Ferraris on the lines laid down by Messedaglia and Rümelin, and describes statistics as the systematic and, as far as may be possible, comprehensive observation of facts, quantitatively grouped in homogeneous masses, and interpreted by the aid of mathematical induction. The historical and the mathematical schools have jointly contributed to its development, and an inquiry into its nature and objects may be appropriately divided into three main sections, which Professor Virgilii distinguishes as *statistica metodologica*, *statistica descrittiva*, and *statistica investigatrice*. His manual follows these distinctions; and the first part is subdivided into two portions, one devoted to the philosophical, and the other to the technical, aspects of statistical method. In the former the causes of error, and the modes of dealing with it, the grounds of the calculus of probability, the employment of arithmetical and other means, the determination of constant and variable causes, receive attention; and in the latter the technical details of numerical tables and of the graphic method are briefly explained. In the second section the author deals concisely with such questions as the nature of official statistics, the place of international statistical congresses, and the modes of classification of descriptive statistics, according as they relate to topography, to population, or to the facts of industrial, intellectual, moral, and political life. In the third and concluding section he considers the results to which statistical investigation may lead, and the objects to which it may be directed.

Prezzi Ideali e prezzi effettivi. Di Giacomo Luzzatti. Milano: Ulrico Hoepli, 1892.

This book forms one of a series, now being published at Milan, on questions of jurisprudence and politics; and, among the other volumes which are stated to be in preparation, are an *Introduction to the Study of Political Economy*, by Professor Cossa, who intends to expand his well-known guide into this larger form; and a book on the *Principles of the Science of Banking*, by Professor Ferraris. Both these projected works, however, are designed to cover a wider area than that embraced by the volume before us, which accords to a somewhat limited subject a treatment of appropriate length. The main part of the work, which bears the additional title of *Notes on a Study of the Value of Money in the Economy of a People*, extends to little more than a hundred pages. But the subject, though limited in scope, is one of importance and of extreme difficulty; and the notes appended to the essay cover no less considerable a space, and betray a wide erudition and extensive acquaintance with the economic literature of other countries besides that of the author himself. He even alludes to so recent a work as Professor Marshall's great treatise. His method of handling his subject is, it must be confessed, decidedly polemical, and he devotes his attention in the main to an elaborate assault on what he calls the "quantitative theory of prices." The distinction drawn in his title, and explained in his book, between ideal and effective, or real, prices is, he states, similar to that made by Bagehot between perfect and actual price. The ideal price represents the social value of a commodity, the effective price its value measured in terms of money; and he argues that from a failure to attain a clear recognition of this distinction, and to pay due regard to the more permanently important of the two kinds of prices, economists have fallen into error. One error is that prices are determined by the quantity of money circulating in a country; whereas he holds that the general condition of the country, and the abundance or scarcity of its commodities, is the determining cause rather than the money itself; and a second error arises from the failure to see that the ideal price tends to increase, and maintains on the other hand that the general tendency of prices is to fall. In considering these mistakes, as he regards them, Professor Luzzatti lays stress on the important part played by credit in modern industry, and he discusses the vexed and difficult questions of the relation of the bank reserves, and of the rate of discount, to changes in prices, and the influx and efflux of the precious metals. The conception of ideal price which he puts forward, though by no means new in economic literature, is nevertheless somewhat intangible; and the tone of his remarks errs perhaps on the side of exhibiting too much of a controversial animus, but his treatment appears to be both learned and acute. He thinks that the quantitative theory is tainted by a survival of the old mercantilist doctrine, and that it is not confirmed by the examination of historical fact.

Immigration and Degradation. By President F. A. Walker. (*Forum*, August, 1891.)

In an article entitled *Immigration and Degradation*, President Francis A. Walker protests against the opinion, not contradicted until about twenty years ago, that if the immigration of foreigners into the United States were to cease, the extinction of the American nation would of necessity follow. President Walker maintains on the contrary that it is the foreigners who have themselves prevented the original stock from increasing. In support of this view he adduces statistics of the great vitality of the people during the early part of this century—as evidenced by increases of 30 to 40 per cent. per decennium—although there were then comparatively few immigrants. From 1830 however the foreigners come in greater numbers, and simultaneously the rate of increase of the population diminishes: so much so, that until 1860 the rate remains practically stationary, in spite of an ever increasing immigration. President Walker proposes three possible reasons; first, "that this was a mere coincidence"—which he ridicules—secondly, "that the foreigners came because the native population was relatively declining"—which is also easily disposed of—and thirdly, "that the growth of the native population was checked by the incoming of the foreign elements in such large numbers." This latter is the view supported. He says: "The access of foreigners, at the time and under the circumstances, constituted a shock to the principle of population among the native element. That principle is always acutely sensitive alike to sentimental and to economic conditions. And it is to be noted in passing, that not only did the decline in the native element, as a whole, take place in singular correspondence with the excess of foreign arrivals, but it occurred chiefly in just those regions to which the new-comers most freely resorted." Discussing then the habits of the two classes of people, he arrives at the conclusion that the simple healthy American, coming into contact with the dirty, lazy, careless foreigner (such as was the immigrant generally), "shrank from the industrial competition thus thrust upon him."

The above is a very condensed account of a most interesting article, and we regret that we have not more space for a fuller account. The subject, however, requires further elucidation, and with all respect for the distinguished author of the article in question, we would point out that the data establishing the rates of increase of the American population prior to 1830, as well as at later dates, seem to require careful study; that the totals at each census are subject to doubt, President Walker himself, when conducting the census of 1880, having found out and exposed serious errors in the census of 1870; and that the latest census of all, that of 1890, has been seriously challenged on the score of a gross understatement of numbers similar to what occurred in 1870. The facts being so much in doubt, is not the theory itself premature? There is, moreover, no confirmation of the theory in any study of marriage and birth-rates, which seem to be practically wanting in the United States. There is no one more competent to deal with the subject than President Walker, and we are sure he will agree with us that the facts deserve a more exhaustive investigation. It is a great misfortune for statistical science that the United States have not a systematic registration of births, marriages, and deaths under federal supervision.

VII.—*Additions to the Library.*

Additions to the Library during the Quarter ended 31*st December*, 1891, *arranged alphabetically under the following heads:*—(a) *Foreign Countries;* (b) *India and Colonial Possessions;* (c) *United Kingdom and its Divisions;* (d) *Authors, &c.;* (e) *Societies, &c.* (*British*); (f) *Periodicals, &c.* (*British*).

Donations.	By whom Presented.
(a) **Foreign Countries.**	
Argentine Republic—	
Datos trimestrales del Comercio exterior. Año 1891. No. 71	The National Department of Statistics
Estadistica del Comercio y de la Navegacion de la Republica Argentina, 1890	
Anales del Departamento Nacional de Higiene. Año I. July—Sept., 1891	The Department
Buenos Ayres. Boletin mensual de Estadistica Municipal. July, Aug., 1891	The Municipal Statistical Bureau
Boletin del Instituto Geografico Argentino. Tomo xi, Cuadernos 10—12, 1891	The Institute
Austria and Hungary—	
Statistische Uebersichten betreffend den Auswärtigen Handel des Zollgebiets. Waren-Ein-, Aus-, und Durchfuhr im ersten Halbjahre 1891, und im Monate July—Sept., 1891	The Statistical Bureau, Ministry of Commerce
Statistik der Sparkassen für 1888	The President, Dr. F. J. Mouat
Statistik des Unterrichts-anstalten für 1888-89	
Statistische Monatschrift. July—Sept., 1891	The Central Statistical Commission
Verhältnisse der Österreichischen Strafanstalten und der Gerichtsgefängnisse im Jahre 1887	
Waaren-Durchfuhr durch das Allgemeine Oesterreichisch-Ungarische Zollgebiet im 1890	

Donations—Contd.

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(a) **Foreign Countries**—*Contd.*	
Austria and Hungary—*Contd.*	
Hungary—	
Magyarorszag Aruforgalma Ausztriaval es mas Orszagokkal. (Monthly Trade Returns.) April—March, 1891	The Royal Hungarian Statistical Bureau
Statistisches Jahrbuch für Ungarn. 1888, Heft 12, Ungarns Feuerschäden. 1889, Heft 6, Die Creditinstitute. Heft 9, Cultus und Unter-richtswesen	
Vienna—	
Der Fremden-Verkehr in Wien während 1874-90. Diagram, 8vo.	Dr. F. J. Mouat.
Das Unterrichtswesen in Wien. Volks- und Specialschulen. 8vo., 1890	
Die definitiven ergebnisse der Volkszählung vom 31 Dec., 1890, in Wien. 8vo.	
Prague—	
Die Königliche Hauptstadt Prag . . . nach den Ergebnissen der Volkszählung vom 31 Dec., 1890	
Bulletin hebdomadaire de la Ville de Prague et des Communes-faubourgs. (Current numbers)	The Statistical Bureau of Prague
Belgium—	
Annales des Travaux Publics. Tome xlix, cahier 1, 1891	The Administration of Mines
Mouvement Commercial avec les Pays Etrangers. Sept.—Nov., 1891	The Bureau of General Statistics
Brussels—	
Bulletin hebdomadaire de Statistique Démographique et Médicale. (Current numbers)	Dr. E. Janssens
Enquête sur les habitations ouvrières en 1890	Dr. F. J. Mouat
Hygiène et Assainissement des habitations ouvrières. Fol. 1891	
Académie Royale de Belgique—	
Annuaires. 56^{e} et 57^{e} années, 1890-91. Portraits. 12mo.	The Academy
Bulletins. Tomes xviii—xxi. Années 1889-91. Plates. 8vo.	
China—	
Customs Gazette, No. 90. April—June, 1891. 4to.	Sir Robert Hart, G.C.M.G., Peking
Medical Reports for the half-year ended 31st March, 1889. 37th issue. 4to.	
Denmark. Nationalökonomisk Tidskrift. Ny Række. Hefte 4—6. 1891	The Danish Political Economy Society
Egypt—	
Commerce extérieur de l'Egypte. Statistique comparée, 1884-89 . . . et Tableaux comparatifs depuis 1874. Diagrams. Fol. 1891	The Director-General of Customs
Postes Egyptiennes. Administration des, Rapports sur les Exercices 1887-90. 4 parts. 8vo.	The Postmaster-General, Alexandria
Postes Egyptiennes. Statistique générale pour les Exercices 1887-90. 4 parts. 4to.	
Postal Guide, Egyptian. Published half yearly. No. 7. 1st Nov., 1891. 8vo.	

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(a) **Foreign Countries**—*Contd.*	
France—	
Annuaire Statistique de la France. 14^{e} année, 1891. 8vo.	The Ministry of Commerce
Agriculture. Bulletin du Ministère de l'. 10^{e} année, Nos. 4—6, 1891. Plates. (No. 6 contains "Récolte des Céréales, &c., en 1890")	The Ministry of Agriculture
Finances. Ministère des, Bulletin de Statistique et de Législation comparée. Sept.—Nov., 1891	The Ministry of Finance
Chemins de Fer. Statistique des, au 31 Décembre des années 1887, 1888, et 1889. Documents principaux. 3 vols., 4to., maps	The Ministry of Public Works
Industrie Minérale. Statistique de l', et des Appareils à vapeur en France et en Algérie pour 1887 et 1889. 2 vols., 4to., diagrams	
Navigation Intérieure. Statistique de la, Nomenclature et conditions de navigabilité des fleuves, rivières et canaux. Années 1889 et 1890. 2 vols., 4to., maps and diagrams	
Routes nationales. Recensements de la circulation en 1882 et en 1888. 3 vols., 4to., maps and diagrams	
Travaux Publics. Ministère des, Bulletin de Statistique et Législation comparée. Aug., Sept., 1891	
Mouvement de la Population en France pendant 1890. 4to.	Dr. F. J. Mouat
L'Economiste Français. (Current weekly numbers)	The Editor
Le Monde Economique. (Current weekly numbers)	"
Polybiblion. Revue Bibliographique Universelle—	
Partie Littéraire. Sept.—Nov., 1891	"
Partie Technique. Sept.—Nov., 1891	
Le Rentier. Journal Financier Politique. (Current numbers)	"
Revue Géographique Internationale. Nov., 1891	"
Revue d'Economie Politique—	
Sept.—Oct. Abolition de l'esclavage au Brésil: *F. W. Dafert.* Protection sans droits protecteurs: *C. Gide.* Limitation légale de la journée de travail en Suisse: *R. Jay*	The Publishers
Nov. Origine de l'esclavage dans les Colonies: *G. F. Knapp.* Legislation sur les "Trusts" aux Etats-Unis: *M. Edwardes.* Question des huit heures en Angleterre: *L. Brentano*	
Annales de l'École Libre des Sciences Politiques. No. 4, Oct., 1891. (Contents.) Formation de la nationalité aux Etats-Unis: *E. Boutmy.* Conversion de la Dette anglaise 3 per cent.: *P. Le Mière.* La question nègre aux Etats-Unis: *G. Pigeonneau.* La Monnaie de l'Indo-Chine: *A. Arnauné*	The Institution
Journal de la Société de Statistique de Paris—	
Oct. Statistique du paupérisme à Londres: *A. De Foville.* Statistique des Sociétés savantes: *V. Turquan*	The Society
Nov. Mouvement de la population en France en 1890: *A. Vannacque.* Circulation monétaire de la France: *A. de Foville.* Le port de Paris: *T. Loua.* L'Office du Travail: *V. Turquan*	

Donations.	By whom Presented.
(a) **Foreign Countries**—*Contd.*	
Germany—	
Monatshefte zur Statistik des Deutschen Reichs. Aug.—Oct., 1891	The Imperial Statistical Bureau
Kriminalstatistik für das Jahr 1889	
Waarenverkehr des Deutschen Zollgebiets mit dem Auslande im Jahre 1890. Theil 1	
PRUSSIA. Preussische Statistik. Band cxi. Die Irrenanstalten im preussischen Staate während 1886-88	The Royal Prussian Statistical Bureau
Saxony—	
Kalender und Statistisches Jahrbuch für das K. Sachsen für 1892	The Royal Saxon Statistical Bureau
Zeitschrift des K. Sachsischen Statistischen Bureaus. Jahrgang 1890. Hefte 3 und 4. Diagrams	
BERLIN. Veröffentlichungen des Statistischen Amts der Stadt. Eheschliessungen, Geburten, Sterbefälle und Witterung. (Current weekly numbers)	The Statistical Bureau of Berlin
HAMBURG. Hamburgs Handel und Schiffahrt, 1890. 4to	The Consul-General for Germany
Archiv für Soziale Gesetzgebung und Statistik. Band iv, Heft 3. 1891. (Contents.) Die Syndicate der Arbeiter und Unternehmer in Frankreich: *R. Jay.* Die belgische Sozialgesetzgebung und das Arbeiterwohnungsgesetz vom 1889: *K. Bucher.*	The Publisher
Greece. Population. Recensement général, Avril 1889. 3ᵉ partie. Sujets hellènes à l'étranger. Fol. 1891	The Statistical Bureau
Italy—	
Annali di Agricoltura, 1891—	
159. Atti del Concorso internazionale di Caseificio	The Director-General of Agriculture
182. Concorsi Agrari regionali, Siena	
184. Notizie sulla Pesca fluviale e lacuale in Italia	
186. Zootecnia. Provvedimenti a vantaggio della produzione bovina, ovina e suina nell' 1890	
Annali di Statistica—	
Atti della commissione per la Statistica Giudiziaria civile e penale. Sessione del 1890	The Director-General, Statistical Department of the State
Statistica Industriale. Fasc. 33, Provincia di Belluno. 34, Provincia di Pesaro e Urbino. Maps. 1891	
Annuario Statistico Italiano. 1889-90. La 8vo.	
Bollettino del Ministero degli Affari Esteri. July—Oct., 1891	
Bollettino mensile delle situazioni dei Conti degli Istituti d' Emissione. July—Sept., 1891	
Bollettino di Notizie sul Credito e la Previdenza. August, 1891	
Bollettino settimanale dei Prezzi di alcuni dei principali Prodotti Agraria e del Pane. (Current weekly numbers)	
Bollettino Sanitario, Direzione della Sanita Pubblica. July—Sept., 1891	
Statistica del commercio speciale di Importazione e di Esportazione. Aug.—Oct., 1891	

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(a) **Foreign Countries**—*Contd.*	
Italy—*Contd.*	
Statistica Giudiziaria Penale per l'anno 1889. Diagram maps Statistica Giudiziaria civile et commerciale per l' anno 1889	The Director-General, Statistical Department of the State
Sanita Pubblica—	
Regolamento sul meretricio. 2 parts. 1891 Filtrazione dei Liquami putrescibili attraverso la Torba. 1891 Applicazione di una Vaschetta a chiusura idraulica, &c., &c. 4 parts. 8vo. 1891	The Director of Public Health
Milan. Statistica al 30 Giugno 1891 delle caldaie a vapore dei motori a vapare, a gas, elettrici ed idraulici nel distretto camerale di Milano. 8vo. 1891	The Milan Chamber of Commerce
L'Economista. (Current weekly numbers)	The Editor
Giornale degli Economisti—	
Oct. L'Economia politica nella Spagna, nel Portogallo, nel Belgio e nei Paesi bassi: *L. Cossa* Nov. Il progetto di legge sulle conservatorie delle ipoteche e il decentramento: *C. Rosmini.* Sulle annualita variabili, contributo alla scienza degli attuari: *G. Poncini* Dec. Credito fondiario in Italia: *A. J. de Johannis.* Le cosidette "*razze inferiori*"	„
Japan—	
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(Corrected to 31st December, 1891.)

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(Founded 1834. Incorporated 1887.)

9, ADELPHI TERRACE,
STRAND, W.C., LONDON.

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1890	*Andrews, Henry, 18, *Essex-street, Strand, W.C.*
1871	Angus, R. B., *Montreal, Canada.*
1890	Ann, Alfred E., F.R.G.S., *The Oaks, Snaresbrook, Essex.*
1884	Anning, Edward James, 78, *Cheapside, E.C.*
1872	*Archibald, William Frederick A., M.A., 4, *Brick-court, Temple, E.C.*
1888	Asch, William, 4, *Albert Mansions*, 118, *Victoria-street, S.W.*
1883	Aschenheim, Gustav, 27, *Mincing-lane, E.C.*
1891	Ashman, Rev. Joseph Williams, M.A., M.D., *Harrow, and National Club*, 1, *Whitehall-gardens, S.W.*
1884	Ashwell, Henry, *Woodthorpe Grange, Sherwood, Notts.*
1888	Atkinson, Charles, *Benhilton, St. Saviour's-road, Croydon.*
1871	Atkinson, George W., 1, *Regent-street, Barnsley.*
1870	Avery, Thomas, *Church-road, Edgbaston, Birmingham.*
1872	*Babbage, Major-General Henry Prevost, *Mayfield, Lansdown-place, Cheltenham.*
1890	Back, Frederick, *Launceston, Tasmania.*
1872	*Backhouse, Edmund, *Bank, Darlington.*
1879	Baden-Powell, Sir George, K.C.M.G., M.P., 8, *St. George's-place, Hyde Park Corner, S.W.*
1855	BAILEY, ARTHUR HUTCHESON, F.I.A., 7, *Royal Exchange, E.C.*

Year of Election

1890 Bain, William Whyte,
23, *Castlereagh-street, Sydney, New South Wales.*

1881 Baines, Jervoise Athelstane, C.S.,
Simla, India.

1882 Baker, Captain Daniel,
56, *St. George's-street, Cape Town.*

1884 Baker, George,
12, *Burwood-place, W.*

1887 Baldwin, Alfred, J.P.,
Wilden House, near Stourport.

1878 Balfour, The Right Hon. Arthur James, M.P., LL.D.,
4, *Carlton-gardens, S.W.*

1848 Balfour, General Sir George, K.C.B., M.P., D.L.,
6, *Cleveland-gardens, Bayswater, W.*

1886 Balfour, Gerald William, M.P.,
67, *Addison-road, Kensington, W.*

1873 Balfour, Jabez Spencer, M.P.,
28, *Whitehall-court, S.W.*

1886 Barker, W. E., B.A.,

1884 Barlow, William Henry, F.R.S., C.E.,
2, *Old Palace-yard, S.W.*

1887 Barnes, Joseph Howard, F.I.A.,
70, *Lombard-street, E.C.*

1889 Barr, Andrew Wallace,
Copthall House, Copthall-avenue, E.C.

1885 Barratt, Thomas J.,
75, *New Oxford-street, W.*

1887 *Barrett, Thomas Squire, F.Z.S., M.A.I., F.R. Hist. Soc.,
Langley House, Grove-lane, Denmark-hill, S.E.

1883 Barron, Thomas Walter, M.A., M.B., M.R.C.S., &c.,
10, *Old Elvet, Durham.*

1888 Barrow, Alfred,
Weston-street, Southwark, S.E.

1878 Barry, Francis Tress, M.P.,
St. Leonard's-hill, Windsor.

1888 *Bartlett, Frederick W.,
4, *Tennison-street, York-road, S.E.*

1889 Bastable, Professor C. F., M.A.,
74, *Kenilworth-square, Rathgar, Co. Dublin.*

1873 Bate, George,
258, *Waterloo-road, Burslem, Staffs.*

1877 BATEMAN, ALFRED EDMUND (*Secretary*),
Board of Trade, Whitehall-gardens, S.W.

1888 Batten, John W.,
3, *Harcourt Buildings, Temple, E.C.*

1877 Bayfield, Arthur,
95, *Colmore-row, Birmingham.*

1873 *Baynes, Alfred Henry, F.R.G.S.,
19 *Furnival-street, Holborn, E.C.*

Year of Election.

1871 *Baynes, William Wilberforce, F.I.A.,
32, Moorgate-street, E.C.

1890 Beardmore, George Russell, M.R.C.S., L.R.C.P.,
Warwick House, Upper-street, Islington-green, N.

1875 *Beardsall, Francis E. M.,
25, Booth-street, Manchester.

1875 *Beaufort, William Morris, F.R.A.S., F.R.G.S., &c.,
18, Piccadilly, W.

1882 *Beazeley, Michael Wornum, M.A.,
8, St. Paul's-road, Thornton Heath, Surrey.

1883 Beckingham, James Horace,
Westwood House, Ryton-on-Tyne, Co. Durham.

1884 Bedford, James,
Woodhouse Cliff, Leeds.

1889 Beecroft, William Henry,
Guildhall, Westminster, S.W.

1882 *BEETON, HENRY RAMIE (*6a, Austin Friars, E.C.*);
9. Maresfield-gardens, Hampstead.

1886 Begg, Ferdinand Faithfull,
Bartholomew House, E.C.

1890 Bell, Frederick, F.I.A.,
9, King-street, Cheapside, E.C.

1880 Bell, Sir Isaac Lowthian, Bart., J.P., F.R.S.
Rounton Grange, Northallerton, York, N.R.

1884 Bell, James T.,
Northcote, Dowanhill, viâ Glasgow.

1888 Bellew, Thomas Acheson,
65, Tower Buildings, Liverpool.

1890 Bellman, Robert Alexander,
21, Mincing-lane, E.C., and Stoke Newington, N.

1888 *Benson, G. R. (*Oxenford Hall, Oxford*),
8, Kensington Court Mansions, W.

1884 *Bentley, Richard, F.R.G.S.,
Upton, Slough, Bucks.

1884 Berg, Wilhelm,
37, Mincing-lane, E.C.

1890 Berry, Arthur, M.A.,
King's College, Cambridge.

1891 Berry, Oscar,
Monument-yard, E.C.

1875 Bevan, Thomas,
Stone Park, near Dartford, Kent.

1869 *Beverley, The Hon. Mr. Justice Henry,
42, Chowringhee, Calcutta.

1879 *Bickford-Smith, William, M.P., J.P., D.L., &c.,
Trevarno, Helston, Cornwall.

1891 Biddle, Daniel, M.R.C.S., L.S.A., &c.,
Gough House, Kingston-on-Thames.

1886 Biggs, Thomas Hesketh, (*Comptroller*),
Rangoon, Burmah.

Year of Election.	
1888	Billinghurst, Henry F., 41, *Lothbury, E.C.*
1883	Binney, William, 13, *St. Helen's-place, E.C.; Hillfield, Hampstead, N.W.*
1888	Binns, Richard William, F.S.A., *Diglis House, Worcester.*
1884	Birch, Robert W. Peregrine, M. Inst. C.E., 5, *Queen Anne's-gate, Westminster, S.W.*
1890	Bishop, Frederic Sillery, M.A., J.P., *Glanrafon, Sketty, Swansea.*
1881	Bishop, George, 131, *Powis-street, Woolwich.*
1883	Blades, R. H., 23, *Abchurch-lane, E.C.*
1888	Blench, John Urwin,
1884	Boileau, John Peter Hamilton, M.D., &c. (*Brigade-Surgeon*), *Medical Staff, Meerut, Bengal.*
1881	Bolitho, Thomas Robins, *Pendrea, near Penzance.*
1887	Bolling, Francis, 2, *Laurence Pountney-hill, E.C.*
1890	Bolton, Edward, *Clifton Villa, Beverley-road, Hull.*
1880	Bolton, Joseph Cheney, M.P., *Carbrook, Larbert, Stirlingshire.*
1885	*Bonar, James, M.A., LL.D., *Civil Service Commission, Westminster, S.W.*
1887	Bond, Edward, *Elm Bank, Hampstead, N.W.*
1885	BOOTH, CHARLES, 2, *Talbot-court, Gracechurch-street, E.C.*
1885	Bordman, Emanuel Linden, *Victoria House, Trinity-street, Southwark, S.E.*
1879	Bordman, Thomas Joseph Clarence Linden, LL.D., *Victoria House, Trinity-street, Southwark, S.E.*
1888	Bottomley, George, *Arbourfield House, Derby.*
1871	BOURNE, STEPHEN, *Abberley, Wallington, Surrey.*
1886	Bourne, William, A.I.A., 4, *Stone-buildings, Lincoln's-inn, W.C.*
1885	Bovell, The Hon. Henry Alleyne, LL.B. *Chelston, Barbados, West Indies.*
1876	Bowen, Horace George, *Bank of England, E.C.*
1879	Bowley, Edwin, F.I.A., 78, *South Hill Park, Hampstead.*
1886	Boyle, Courtenay, C.B., *Board of Trade, Whitehall-gardens, S.W*

Year of Election.	
1883	Braby, Frederick, F.C.S., F.G.S., *Bushey Lodge, Teddington.*
1875	Braby, James, J.P., *Maybanks, Rudgwick, Sussex.*
1888	Bramwell, Sir Frederick J., Bart., D.C.L., F.R.S., 5, *Great George-street, Westminster, S.W.*
1886	Bramwell, The Right Hon. Lord, F.R.S., 17, *Cadogan-place, S.W.*
1873	BRASSEY, THE RIGHT HON. LORD, K.C.B. (*Honorary Vice-President*), 4, *Great George-street, S.W.; and* 24, *Park-lane, W.*
1864	*Braye, The Right Hon. Lord, *Stanford Hall, Rugby.*
1884	Breckon, John Robert, 41, *Fawcett-street, Sunderland.*
1883	Broad, Harrington Evans, 1, *Walbrook, E.C.*
1876	Brodhurst, Bernard Edward, F.R.C.S., 20, *Grosvenor-street, Grosvenor-square, W.*
1883	Brooke, C. B., 16, *Leadenhall-street, E.C.*
1874	Broom, Andrew, A.C.A., 2, *De Crespigny-terrace, Denmark-hill, S.E.*
1878	Brown, Alexander Hargreaves, M.P., 12, *Grosvenor-gardens, S.W.*
1890	Browne, Edward William, 33, *Poultry, E.C.*
1875	Browne, Thomas Gillespie C., F.I.A., 11, *Lombard-street, E.C.*
1884	Browne, Willis, F.I.A.,
1886	Bruce, Lord Henry Brudenell, M.P., 36, *Eaton-place, S.W.*
1886	*Brunner, John Tomlinson, M.P., *Druid's Cross, Wavertree, Liverpool.*
1883	Buck, Sir Edward Charles, *Revenue and Agricultural Department, Simla, India.*
1865	Bunce, John Thackray, *Longworth, Priory-road, Edgbaston, Birmingham.*
1880	*Burdett, Henry Charles, *The Lodge, Porchester-square, W.*
1873	*Burdett-Coutts, The Right Hon. the Baroness, 1, *Stratton-street, W.; and Holly Lodge, Highgate, N.*
1884	Burdett-Coutts, William, M.P., 1, *Stratton-street, Piccadilly, W.*
1885	Burridge, Arthur Francis, F.I.A., *Equitable Assurance Office, Mansion House-street, E.C.*
1886	Burrows, Abraham, J.P., *Green Hall, Atherton, near Manchester.*

Year of Election.
1880 Burt, Frederick, F.R.G.S.,
Woodstock, Crouch End, N.
1872 *Burton, The Right Hon. Lord, (*Chesterfield House, Mayfair, W.*); *and Rangemore, Burton-on-Trent.*
1886 Bush, Baron William de, F.C.S.,
20, *Artillery-lane, Bishopsgate-street, E.C.*
1891 Butler, Arthur J.,
Dale Close, Mansfield, Notts.
1888 Byrom, William Ascroft, F.S.A.A.,
Savings' Bank, Wigan, Lancashire.

1857 Caird, The Right Hon. Sir James, K.C.B., F.R.S.
(*Honorary Vice-President and Trustee*),
8, *Queen's-gate-gardens, S.W.; & Cassencary, Creetown, N.B.*
1874 Campbell, Sir George, K.C.S.I., M.P., D.C.L.,
17, *Southwell-gardens, South Kensington, S.W.*
1877 Campbell, George Lamb,
Market-street, Wigan.
1879 Campbell-Colquhoun, Rev. John Erskine,
Chartwell, Westerham, Kent.
1889 Cannan, Edwin, M.A.,
24, *St. Giles', Oxford.*
1891 Cannon, Henry W. (*Chase National Bank*),
Corner Nassau and Pine-streets, New York, U.S.A.
1888 Carbutt, Edward Hamer, M. Inst. M.E., M. Inst. C.E., J.P.
19, *Hyde Park-gardens, W.*
1881 Carden, Lionel Edward Gresley,
H.M. Consul, Mexico.
1872 *Carillon, J. Wilson, F.S.A., F.R.G.S.,
The Chimes, Richmond, Surrey.
1887 Carmichael, Charles H. E., M.A.,
Earlsmuir House Mirabel-road, Fulham, S.W.
1885 Carmichael, Thomas D. Gibson,
Castlecraig, Dolphinton, N.B.
1888 Carr, Ebenezer,
24, *Coleman-street, Bank, E.C.*
1888 Carruthers-Wain, William J.,
Linden Lodge, Thornton Heath, Surrey.
1890 *Carter, Eric Mackay, A.I.A., F.C.A.,
33, *Waterloo-street, Birmingham.*
1883 Carter, Joseph Robert,
185, *Tottenham Court-road, W.*
1878 *Casley, Reginald Kennedy, M.D.,
Northgate-street, Ipswich.

Year of Election.	
1885	Casson, William A., 22, *Addison-road, Bedford-park, Chiswick.*
1880	Castle, Robert, 18, *Merton-street, Oxford.*
1883	Cater, J. J., 39, *Lombard-street, E.C.*
1883	Cattarns, Richard, *Enfield House, Grove-park, Lee, S.E.*
1881	Causton, Richard Knight, M.P. 3, *Clanricarde-gardens, W.*
1858	Chadwick, David, *The Poplars, Herne Hill, Dulwich, S.E.*
1869	Chadwick, John Oldfield, F.R.G.S., 95, *Finsbury-pavement, E.C.*
1884	Chailley, Joseph, 9, *Rue Guy de la Brosse, Paris.*
1888	Challis, William H. *Enfield, Middlesex.*
1880	*Chamberlain, The Right Honourable Joseph, M.P., F.R.S 40, *Prince's-gardens, S.W.*
1886	Chamberlain, Richard, M.P., 39, *Cadogan-square, S.W.*
1886	Chapman, Samuel, c/o *Inter-Oceanic Railway, Mexico City* (*viâ New York*).
1851	*Cheshire, Edward, 3, *Vanbrugh Park, Blackheath, S.E.*
1853	Chisholm, David, F.I.A., F.S.A., 9, *Rillbank-terrace, Edinburgh.*
1886	*Chisholm, George Goudie, M.A., B.Sc., F.R.G.S., 26, *Dornton-road, Balham, S.W.*
1869	Chubb, Hammond, B.A., *Bickley, Kent.*
1849	Clark, Gordon Wyatt, *Mickleham Hall, near Dorking, Surrey.*
1886	Clark, Henry James (*Government Statist of Trinidad*). *Port of Spain, Trinidad.*
1856	Clark, Sir John Forbes, Bart., *Tillypronie, Tarland, Aberdeen.*
1888	Clarke, Charles Goddard, *Ingleside, Elm Grove, Peckham, S.E.*
1871	Clarke, Ebenezer, *Grove-road-villas, Walthamstow.*
1882	*Clarke, Ernest, F.L.S., F.S.A., 10, *Addison-road, Bedford-park, Chiswick.*
1877	*Clarke, Henry, L.R.C.P., *H.M. Prison, Wakefield, Yorks.*
1890	Clarke, Henry, *Cannon Hall, Hampstead, N.W.*
1856	*CLARKE, HYDE, 32, *St. George's-square, S.W.*

Year of Election.	
1869	Cleghorn, John, 3, *Spring-gardens S.W.*
1853	Clirehugh, William Palin, F.I.A., 66, *Cornhill, E.C.*
1888	Clough, Walter Owen, 89, *Gresham-street, E.C., and The Ridgway, Enfield.*
1889	Coate, James, *East Villa, Lyme-road, Axminster.*
1873	Cockle, Captain George, F.R.G.S., 9, *Bolton-gardens, South Kensington, S.W.*
1884	Cockshott, John James, 24, *Queen's-road, Southport.*
1887	Cohen, Nathaniel Louis, 31, *Throgmorton-street, E.C.*
1888	Coleman, Harry, 34, *Golden-square, W.*
1859	Coles, John, F.I.A., 39, *Throgmorton-street, E.C.*
1887	Collet, Sir Mark Wilks, Bart., 2, *Sussex-square, W., and St. Clere, Sevenoaks, Kent.*
1888	Collison, Frederick H., 99, *Cheapside, E.C., and Talfourd-road, Camberwell.*
1883	Collmann, John S.,
1882	*Collum, Rev. Hugh Robert, M.R.I.A., F.R.C.I., *Vicar of Leigh, near Tunbridge, Kent.*
1867	Colman, Jeremiah James, M.P., *Carrow House, Norwich.*
1878	Colomb, Captain Sir J. C. R., K.C.M.G., M.P., R.M.A., J.P., *Droumquinna, Kenmare, Kerry.*
1889	Compton, The Right Hon. Earl, M.P., 51, *Lennox-gardens, S.W.*
1888	Connell, Arthur Knatchbull, M.A., 20, *Elmtree-road, N.W.*
1891	Cooper, Joseph, 60, *Park-street, Farnworth, near Bolton.*
1874	Corbett, John, M.P., 20, *Hertford-street, Mayfair, W.*
1883	Corgialegno, M., *George-yard, Lombard-street, E.C.*
1873	Cork, Nathaniel, F.R.G.S., 18, *Birchin-lane, E.C.*
1889	Cornwallis, Fiennes Stanley Wykeham, M.P., *Linton-park, Maidstone, Kent.*
1880	Cotterell-Tupp, Alfred, 17, *Devonshire-terrace, Hyde-park, W.*
1890	Cotton, F. Carter, *Vancouver, British Columbia.*
1862	Courtney, The Right Hon. Leonard Henry, M.A., M.P., 15, *Cheyne Walk, Chelsea, S.W.*

Year of Election.	
1882	Cowen, Charles, *Johannesburg, Transvaal, South Africa.*
1888	Craggs, John George, C.A., *Stone House, St. John's, S.E.*
1874	CRAIGIE, MAJOR PATRICK GEORGE (*Secretary*), 6, *Lyndhurst-rd., Hampstead, & 4, Whitehall-place, S.W.*
1870	Craik, George Lillie, 29, *Bedford-street, Strand, W.C.*
1889	Cramp, Charles Courtney, C.E., 28, *Boscombe-road, Uxbridge-road, W.*
1890	Crawford, Richard Frederick, 4, *Whitehall-place, S.W.*
1891	*Crawley, Charles Edward, *Treasury-buildings, Calcutta, India.*
1878	Crewdson, Ernest, *Platt Abbey, Rusholme, Manchester.*
1886	Crispin, Edward, *c/o Haynes, Foucher, & Co.*, 14, *Gray's Inn-road, W.C.*
1890	Croal, David Octavius, 15, *York-buildings, Adelphi, W.C.*
1885	Cropper, James, *Ellergreen, Kendal.*
1883	Cullen, Thomas, F.C.A.
1887	Culley, George, 2, *Whitehall-place, S.W.*
1875	Cunningham, David, C.E., *Works' Office, Harbour-chambers, Dundee.*
1883	CUNNINGHAM, REV. WILLIAM, M.A., D.D., 2, *St. Paul's-road, Cambridge.*
1884	Curtis, Charles Edward, 6, *Barron's Court-road, West Kensington, S.W.*
1879	Curtis, Robert Leabon, F.S.I., J.P., 120, *London Wall, E.C.*
1873	Czarnikow, Cæsar, *Effingham-hill, Dorking, Surrey.*
1886	Dale, David, *West Lodge, Darlington.*
1888	Dangerfield, Athelstan, A.C.A., 17, *Basinghall-street, E.C.*
1884	Daniell, Clarmont J., *Constitutional Club, S.W.*
1880	Danvers, Frederick Charles, 103, *Lexham-gardens, Kensington, W.*

Year of Election.	
1873	Danvers, Sir Juland, K.C.S.I., *India Office, Westminster, S.W.*
1886	Darrell, Charles, *Sidcup, Kent.*
1890	Davey, Robert Williams, B.A., 7, *Mincing-lane, E.C., and Junior Athenæum Club, S.W.*
1869	Davies, James Mair, 75, *West Regent-street, Glasgow.*
1874	Davies, William Henry, 51, *Tregunter-road, West Brompton, S.W.*
1890	Dawson, A. L. Halkett, M.A., F.R.G.S., *Grand Hotel, Melbourne, Victoria.*
1888	Dawson, G. J. Crosbie, M. Inst. C.E., F.G.S. (Engineer), *North Staffordshire Railway, Stoke-upon-Trent.*
1886	Dawson, J Eugène, *Walpole House, Walpole-street, Freetown, Sierra Leone.*
1880	Debenham, Frank, 26, *Upper Hamilton-terrace, St. John's Wood, N.W.*
1885	De Broë, Emile Conrad De Bichin, *Walden Lodge, College Park, Wandsworth-common, S.W.*
1884	De Colyar, Henry Anselm,
1879	*De Ferrieres, The Baron Du Bois, J.P., *Bay's-hill House, Cheltenham.*
1884	De Jouy, J. Henry B., 27, *Rue de l'Université, Paris.*
1883	*De Keyser, Sir Polydore (Alderman), *Chatham House, Grove-road, Clapham Park, S.W.*
1877	Deloitte, William Welch, 4, *Lothbury, E.C.*
1891	Denne, William, *Statistical Department, Custom House, E.C.*
1873	Dent, Edward, *Fernacres, Fulmer, near Slough, Bucks.*
1887	Dent, George Middlewood, 13, *Chambres-road, Southport.*
1855	*DERBY, THE RIGHT HON. THE EARL OF, K.G., F.R.S., D.C.L. (*Honorary Vice-President*), *St. James's-square, S.W.; Knowsley, Prescot, Lancashire.*
1887	De Ricci, James Herman, F.R.G.S.,
1889	De Rothschild, Leopold, J.P., D.L. (Alderman), 5, *Hamilton-place, Piccadilly, W.*
1889	De Souza, Sir Walter Eugene, 35, *Albert Hall Mansions, S.W.*
1882	*De Stern, Edward, 11, *Princes-gate, S.W.*
1877	Dever, Henry, 4, *Lothbury, E.C.*

Year of Election.

1889 De Woolfson, Louis Estevan Green,
St. John's-hill, Shrewsbury.

1877 De Worms, The Right Hon. Baron Henry, M.P., F.R.A.S.,
Carlton Club, Pall Mall, S.W.

1885 Dibley, Captain George,
4, *St. George's-square, S.W.*

1890 Dickinson, Willoughby Hyett,
Bramblebury, Wandsworth-common, S.W.

1866 *Dilke, The Right Hon. Sir Charles Wentworth, Bart., LL.M.,
76, *Sloane-street, S.W.*

1873 Dixon, George, M.P.,
The Dales, Edgbaston, Birmingham.

1889 Double, Alfred,
25, *Jewin-crescent, Cripplegate, E.C.*

1889 Doubleday, William Bennett,
123, *Tulse-hill, S.W.*

1889 Douglas, J.,
E.I. Railway House, Dalhousie Square, Calcutta.

1875 Doxsey, Rev. Isaac,
186, *The Grove, Camberwell, S.E.*

1878 Doyle, Patrick, C. E., F.G.S., M.R.A.S.,
Calcutta.

1890 Drummond, Charles James,
3, *Raquet-court, Fleet-street, E.C.*

1875 Dun, John,
Parr's Banking Company Limited, Warrington.

1886 Dundonald, The Right Hon. the Earl of,
34, *Portman-square, W*

1884 Dunn, Archibald Joseph,
23, *Applegarth-road, Brook-green, Hammersmith, W.*

1878 *Dunraven, The Right Hon. The Earl of, K.P.,
Kenry House, Putney Vale, S.W.

1885 Dyer, William John,
17, *Montpelier-row, Blackheath, S.E.*

1888 Earnshaw, Jacob,
10, *St. James's-square, Manchester.*

1888 Eckersley, J. C., M.A., F.R.G.S.,
Standish Hall, Wigan; 26, Davies-street, Berkeley-square.

1883 EDGEWORTH, PROFESSOR FRANCIS YSIDRO, M.A., D.C.L.,
5, *Mount Vernon, Hampstead, & Balliol College, Oxford.*

1869 Edmonds, William,
Annesley House, Southsea.

Year of Election

1880 Egerton of Tatton, The Right Honourable Lord,
7, St. James's-square, S.W.

1872 Elliot, Sir George, Bart., M.P.,
Park-street, Park-lane, W.; 23, *Gt. George-street, S.W.*

1885 Elliot, William Henry,
122, *Mansion House-chambers, Queen Victoria-street, E.C.*

1888 Elliott, Henry W.,
Elmfield, Selly Oak, near Birmingham.

1885 ELLIOTT, THOMAS HENRY (*Vice-President*),
Local Government Board, Whitehall, S.W.

1885 Elliott, William,
22, *St. George's-street, Cape Town.*

1873 Emanuel, Lewis,
91, *Gloucester-terrace, Hyde-park, W.*

1877 Emmott, W. T.,
New Bridge-street, Manchester.

1888 Emson, Reginald Embleton,
Hazelmere, Glen Eldon-road, Streatham, S W,

1889 Erhardt, William,
7, *Bury-street, Bloomsbury, W.C.*

1882 Essex, Benjamin Smily,
48, *Pall Mall, S.W.*

1879 Evans, Henry Jones, J.P.,
Greenhill, Whitchurch, Cardiff.

1890 Evill, John Percy,
32, *Abingdon-villas, Kensington, W.*

1875 Faraday, Frederick J.,
17, *Brazennose-street, Manchester.*

1888 Farlow, A. R. King,
4, *King-street, Cheapside, E.C.*

1889 Farnworth, Edward James,
20, *Cannon-street, Preston.*

1891 Farquharson, J. C.,
Railway Department, Colombo, Ceylon.

1878 Farren George, J.P., A.M.Inst.C E.,
Carnarvon.

1878 Farrer, Sir Thomas Henry, Bart., J.P.,
27, *Bryanston-square, W.*; *Abinger Hall, Dorking.*

1890 Faulks, Joseph Ernest, B.A., F.I.A.,
187, *Fleet-street, E.C.*

1876 Fearnside, Henry, M.B., F.R.C.P.,

Year of Election.	
1882	Fell, Arthur, M.A., 46, *Queen Victoria-street, E.C.*
1864	Fellows, Frank Perks, 8, *The Green, Hampstead, N.W.*
1888	Fellows, James I., *Saxon Hall, Palace-court, Kensington Gardens, W.*
1887	Fenton, James J., *Office of the Government Statist, Melbourne, Victoria.*
1885	Ferguson, Ronald Crawfurd Munro, M.P., *Raith, Kirkcaldy, N.B.*
1888	Finckenstadt, Edmund Ernest, 6, *King-street, Cheapside, E.C.*
1880	Findlay, George, (*General Manager*), *London and N. Western Railway, Euston Station, N.W.*
1880	Finlaison, Alexander John, C.B., F.I.A., 19, *Old Jewry, E.C.*
1889	*Finlay, Major Alexander, *The Manor House, Little Brickhill, Bletchley, Bucks.*
1884	*Finnemore, Robert Isaac, J.P., F.R.G.S., &c., *Durban, Natal, South Africa*
1888	Fisher, Walter Newton, F.C.A., 4, *Waterloo-street, Birmingham.*
1885	*Fitz-Gerald, Lt.-Col. Wm. G., M.A., F.R. Hist. S., F.R.S. Lit., 47, *Crosby-buildings, Crosby-square, E.C.*
1882	Foley, Patrick James, M.P., *Pearl Ins. Co., Adelaide-place, London Bridge, E.C.*
1889	Foot, Alfred, *Bedford-villas, Penge-road, South Norwood.*
1886	Ford, Alfred, 90, *Cannon-street, E.C.*
1841	Fortescue, The Right Honourable Earl, *Castle Hill, South Molton, Devon.*
1888	Forwood, Sir William B., J.P., *Blundell Sands, Liverpool.*
1884	Fosbery, William Thomas Exham, *The Castle-park, Warwick.*
1888	Foster, Harry Seymour, F.R.G.S., *City Carlton Club, St. Swithin's-lane, E.C.*
1868	Fowler, William, 43, *Grosvenor-square, W.*
1890	Fox, Charles Allen, M.R.C.S., *Ashfield, Ross, Herefordshire.*
1888	Fox, William Henry, 9, *Austin Friars, E.C.*
1878	Foxwell, Professor H. Somerton, M.A., *St. John's College, Cambridge.*
1888	Frampton, Albert Tom,
1887	Frankland, Frederick William, F.I.A. *Govt. Life Ins. Office, Wellington, New Zealand.*

Year of Election.

1886 Fream, Professor William, B.Sc., Lond., LL.D., F.L.S., F.G.S.,
The Vinery, Downton, Salisbury.
1844 *Freeland, Humphrey William, J.P.,
Athenæum Club, S.W.; and Chichester.
1887 Freeman, T., jun., F.G.S.,
52, *Weltje-road, Ravenscourt-park, W.*
1890 Freestone, John,
West Bridgford, Nottingham.
1884 Frith, Walter Halsted,
69, *Lombard-street, E.C.*
1886 Fuller, George Pargiter, M.P.,
Neston-park, Corsham, Wilts.
1878 Fuller, William Palmer,
Portland House, Basinghall-street, E.C.

1879 Gairdner, Charles,
Broom, Newton Mearns, Renfrewshire.
1852 Galsworthy, Sir Edwin Henry, J.P.,
18, *Park-crescent, Portland-place, W.*
1873 *Galton, Capt. Sir Douglas, K.C.B., D.C.L., LL.D., F.R.S.,
12, *Chester-street, Grosvenor-place, S.W.*
1860 Galton, Francis, F.R.S., F.R.G.S.,
42, *Rutland-gate, S.W.*
1887 Garcke, Emile,
21, *Priory-road, Bedford-park, Chiswick.*
1889 Garland, Nicholas Surrey,
Finance Department, Ottawa, Canada.
1881 GARNETT, FREDERICK BROOKSBANK, C.B. (*Vice-President*),
4, *Argyll-road, Kensington, W.*
1881 Garraway, The Hon. David G.,
Castries, St. Lucia, West Indies.
1879 *Gassiot, John Peter, J.P.,
The Culvers, Carshalton, Surrey,
1883 Gates, Jacob S.,
St. George's House, Eastcheap, E.C.
1880 *Gates, John Benjamin, jun., A.C.A.,
47, *Warwick-street, Regent-street, W.*
1881 *Gatty, William Henry,
Market Harborough, Leicestershire.
1885 Gibb, George S.,
North-Eastern Railway Company, York.
1872 Gibb, Thomas Eccleston,
16, *Lady Margaret-road, N.W.*

Year of Election.	
1874	Gibbs, Alban George Henry, 82, *Portland-place, W.*
1871	Gibbs, George Sleight, 45, *Northgate, Darlington.*
1889	Gibson, George Rutledge, 7, *West 51st-street, New York City, U.S.A.*
1888	Gielgud, Henry, 12 *Lupus-street, St George's-square, S.W.*
1867	*GIFFEN, ROBERT, C.B., LL.D. (*Honorary Vice-President*), 44, *Pembroke-road, Kensington, W.*
1877	Gilbert, William H. Sainsbury, 62, *Old Broad-street, E.C.*
1878	*Glanville, Silvanus Goring, 39, *Vicar's-hill, Lewisham, S.E.*
1860	Glover, John, J.P., 88, *Bishopsgate-street Within, E C.*
1888	Goad, Charles E., M. Am. Soc. C.E., M. Can. Soc. C.E., 53, *New Broad-street, E.C., and Montreal, Canada.*
1884	*Gonner, Professor Edward C.K., M.A., *University College, Liverpool.*
1877	Good, Alfred, 57, *Moorgate-st., E.C.; Downe Lodge, Beckenham, Kent.*
1886	Goodrich, Harry St. Aubyn, 5 *Herbert-crescent, Hans-place, S.W.*
1885	Goodsall, David Henry, F.R.C.S., 17, *Devonshire-place, W.*
1868	GOSCHEN, THE RIGHT HON. GEORGE JOACHIM, M.P., (*Honorary Vice-President*), 69, *Portland-place, W., and Seacox-heath, Hawkhurst.*
1855	*Gosset, John Jackson, *Thames Ditton, Surrey.*
1885	Goulding, William Purdham, F.S.I., 41, *Moorgate-street, E.C.; and* 18, *Mercers-road, N.*
1887	Gover, Frederic Field, *Casino House, Herne Hill, S.E.*
1853	Gover, William Sutton, F.I.A., 4, *Queen-street-place, Southwark Bridge, E.C.*
1885	Grant, Thomas Rennie, 10, *Harrington-gardens, Kensington. S.W.*
1875	Granville, Joseph Mortimer, M.D., F.G.S., 14, *Hanover-square, W.*
1887	Graves, The Rev. Michael, B.A., *Sir W. Borlase's School, Great Marlow.*
1847	Gray, Thomas, 34, *Fenchurch-street, E.C.*
1888	Green, Joseph Shaw, 18, *King Street, Warrington.*
1886	Green, Oswald R., 7, *Finsbury-square, E.C.*

Year of Election	
1889	Grenfell, William Henry, B.A., J.P., D.L. (Alderman), *Taplow-court, Taplow, Bucks.*
1887	Gribble, George J., 25, *Hans-place, S.W.*
1883	Griffin, Josiah, *Vanbrugh Park, Blackheath, S.E.*
1868	Griffith, Edward Clifton, 1, *Waterloo-place, S.W.*
1884	Griffith, His Honour T. Risely, *Government House, Mahé, Seychelles, viâ Marseilles.*
1889	Grigsby, William Ebenezer, M.A., LL.D., 7, *King's Bench Walk, Temple, E.C.*
1883	Grimshaw, Thomas Wrigley, M.D., M.A., (*Registrar-General of Ireland*), *Priorsland, Carrickmines, Co. Dublin.*
1886	Grimston, The Right Hon. Viscount, M.P., *Cell Barnes, St. Albans.*
1889	Grosvenor, George, *Holywell, Streatham-common, S.W.*
1888	Grosvenor, The Hon. Norman de l'Aigle, 58, *Green-st., Grosvenor-sq.; Moor-park, Rickmansworth.*
1883	Gunther, Charles, 9, *Fenchurch-avenue, E.C.*
1875	Gunn, Arthur, 31, *Gloucester-road, Gloucester-gate, Regent's-park, N.W.*
1878	Guthrie, Charles, F.C.A. *London Chartered Bank of Australia, Melbourne, Victoria.*
1885	Guthrie, Edwin, *Victoria Park, Manchester.*
1887	Guyot, Yves (*Ministre des Travaux Publics*), 214, *Boulevard St. Germain, Paris.*
1880	*Gwynne, James Eglinton A., J.P., F.S.A., 97, *Harley-st., W.; Folkington Manor, Polegate, Sussex.*
1887	Gwyther, John Howard, *Hatton-court, Threadneedle-street, E.C.*

1884	Haas, Hendrik Christiaan, 32, *Fenchurch-street, E.C.*
1888	Haddon, John, 3, *Bouverie-street, Fleet-street, E.C.*
1884	Hadley, Joseph, 5, *Argyll-place, Regent-street, W.*

Year of Election.	
1883	Hadrill, Henry John, 1, *Foley-avenue, East Heath, Hampstead, N.W.*
1873	*Haggard, Frederick T., 1, *Broadwater Down, Tunbridge Wells.*
1884	Hague, John, *King-street, Toronto, Canada.*
1887	Haldeman, Donald Carmichael, *Claremont, Gypsy Hill, S.E.*
1883	Hall, Sir John, K.C.M.G., *Hororata, Canterbury, New Zealand.*
1890	Hall, Joseph Castle. 89, *Gresham-street, E.C.*
1878	Hallett, Thomas George Palmer, M.A., *Claverton Lodge, Bath.*
1887	Hamilton, Edward W., C.B., *The Treasury, Whitehall, S.W.*
1873	Hamilton, The Right Hon. Lord George Francis, M.P., 17, *Montagu-street, Portman-square, W.*
1883	Hamilton, James Thomas, 23, *High-street, Southampton.*
1882	Hamilton, John James, 7, *Barkston-gardens, Earl's-court, S.W.*
1879	Hamilton, Rowland, *Oriental Club, Hanover-square, W.*
1887	Hamilton, Thomas, J.P., 46, *Parliament-hill-road, Hampstead, N.W.*
1884	*Hammersley, Hugh Greenwood, 14, *Chester-square, S.W.*
1888	Hammond, Robert, 117, *Bishopsgate-street Within, E.C.*
1885	*Hancock, Charles, M.A., Oxon., 2 *Cloisters, Temple, E.C.; and Reform Club, S.W.*
1875	Hankey, Ernest Alers *Elmhurst, Bickley-park, Kent.*
1876	Hansard, Luke, 68, *Lombard-street, E.C.*
1871	*Harcourt, Right Hon. Sir William Vernon, Q.C., M.P., F.R.S. *Reform Club., S.W.*
1886	*Hardcastle, Basil William, *Beechenden, Hampstead, N.W.*
1886	Hardcastle, E. J., *Oriental Club, Hanover-square, W.*
1877	Harding, Colonel Charles, F.R.G.S., 10, *St. Swithin's-lane, E.C.*
1883	Harding G. P., *La Chaumière, Trouville, S./M. France.*
1884	Hardy, George Francis, F.I.A., 5, *Whitehall, S.W.*
1883	Hardy, William Henry, F.C.A., 5, *Great Winchester-street, E.C.*

Year of Election	
1891	Harris, Arthur Wellesley, M.R.C.S., L.S.A., D.P.H., *High-street, Southampton.*
1868	Harris, David, *Caroline Park, Granton, Edinburgh.*
1887	Harris, William A., F.R.S.S.A., *Phœnix Chambers, Exchange, Liverpool.*
1882	Harris, William James, *Halwill Manor, Beaworthy, N. Devon.*
1890	Harrison, Rev. Arthur, B.A., F.R.S.L. *Colan Vicarage, St. Columb, Cornwall.*
1889	Harrold, Major Arthur Lucas, *Adelaide, South Australia.*
1887	Harrold, Leonard F., F.R.G.S., 29, *Great St. Helens, E.C.*
1884	Hart, James, 16, *Philpot-lane, E.C.*
1881	Harvey, Alfred Spalding, B.A., 67, *Lombard-street, E.C.*
1884	Harvey, Thomas Morgan, *Portland House, Basinghall-street, E.C.*
1876	Hawkins, Alfred Templeton, F.R.G.S., 22, *Budge-row, Cannon-street, E.C.*
1879	Hawksley, Thomas, C.E., F.R.S., &c., 30, *Great George-street, Westminster, S.W.*
1880	Hazell, Walter, 15, *Russell-square, W.*
1887	*Heap, Ralph, jun., 1, *Brick-court, Temple, E.C.*
1884	Hedley, Robert Wilkin, 31*a*, *Colmore-row, Birmingham.*
1870	Hefford, George V., *Rugby.*
1883	Heilgers, Robert Philip, 22, *Great St. Helens, E.C.*
1889	*Hemming, Arthur George, F.I.A., 2, *Earl's Court-square, South Kensington, S.W.*
1865	Hendriks, Augustus, F.I.A., 7, *Cornhill, E.C.*
1855	*HENDRIKS, FREDERICK, F.I.A. (*Vice President*), 7, *Vicarage-gate, W., and* 1, *King William-street, E.C.*
1886	Henshaw, Richard S., 31, *Bedford-street, Strand, W.C.*
1877	*Herbage, William, *London & South Western Bank,* 7, *Fenchurch-st., E.C.*
1888	Heriot, George, 1, *Whittington House, Leadenhall-street, E.C.*
1881	Hewat, Archibald, F.I.A., F.F.A., 22, *George-street, Edinburgh.*
1890	Hewins, W. A. S., B.A., *Pembroke College, Oxford.*

Year of Election.	
1834	*HEYWOOD, JAMES, M.A., F.R.S., F.G.S (*Honorary Vice-President and Trustee*), 26, *Palace-gardens, Kensington, W.; Athenæum Club, S.W.*
1886	Hibbert, H. F., 8, *Park-road, Chorley, Lancashire.*
1869	Hickson, Sir Joseph, J.P. (*General Manager*), *Grand Trunk Railway, Montreal, Canada.*
1878	*Hill, Frederick Morley, 22, *Richmond-road, Barnsbury, N.*
1878	Hillingdon, The Right Hon. Lord, *Camelford House Park-lane, W.*
1890	Hinde, Frederick, 63, *Leopold-street, Leeds.*
1884	Hoare, Alfred, 37, *Fleet-street, E.C.*
1879	Hoare, H. N. Hamilton, 37, *Fleet-street, E.C.*
1870	*Hoare, Henry, 22, *Bryanston-square, W.*
1889	Hogg, Quintin (Alderman), 5, *Cavendish-square, W.*
1888	Hollams, John, 52, *Eaton-square, S.W.*
1888	Hollington, Alfred J., *Aldgate, London, E.*
1884	Hollond, John Robert, *Reform Club, S.W.*
1891	Hooker, Sir Joseph Dalton, K.C.S.I., F.R.S., &c., *The Camp, Sunningdale.*
1879	Hooper, George Norgate, *Elmleigh, Hayne-road, Beckenham, Kent.*
1878	Hooper, Wynnard, 13, *Sumner-place, Onslow-square, S.W.*
1887	Hopkins, John, *Hayes Court, Hayes, Kent.*
1890	Howarth, William, F.R. Hist. S., 102, *Malpas-road, Brockley, S.E.*
1888	Howell, Edward J. *Kingston House, Caterham Valley, Surrey.*
1883	Howell, Francis Buller, 2, *Middle Temple-lane, E.C.*
1883	Howell, George, M.P., *Hampden House, Ellingham-road, Shepherd's Bush, W.*
1864	Hudson, Thomas, 22, *Sudbourne-road, Brixton-hill, S.W.*
1878	Hughes, John, 3, *West-street, Finsbury-circus, E.C.*
1872	Humphreys, George, M.A., F.I.A., 79, *Pall Mall, S.W.*

Year of Election.	
1874	Humphreys, Noel Algernon, *Census Office, Charles-street, Westminster, S.W.*
1883	Hunt, Richard Aldington, A.I.A., *Moor-street, Birmingham.*
1888	Hunter, George Burton, *Wallsend-on-Tyne.*
1885	Hunter, William Alfred, LL.D., M.P., 2, *Brick-court, Temple, E.C.*
1857	Hurst, George, *King's Brook House, St. Mary's, Bedford.*
1890	Huth, Ferdinand M., 12, *Tokenhouse-yard, E.C.*
1888	Hyde, Clarendon G., B.L., 4, *Pump-court, Temple, E.C.*
1887	Hyde, Henry Barry, 5, *Eaton-rise, Ealing, W.*

1874	*Ingall, William Thomas Fitzherbert Mackenzie, 6, *Drapers'-gardens, E.C.*
1869	*Inglis, Cornelius, M.D., *Athenæum Club, S.W.*
1888	*Ionides, Alexander A., 1, *Holland Park, W.*
1887	Irvine, Somerset William D'Arcy, *Govt. Life Ins. Office, Wellington, New Zealand.*
1864	*Ivey, George Pearse, *South Villa, Bexley-heath, Kent.*

1885	Jackson, Henry, 158, *The Common, Peckham Rye, S.E.*
1880	*Jackson, The Right Hon. William Lavies, M.P., *Chapelallerton, Leeds.*
1879	Jamieson, George Auldjo, 37, *Drumsheugh-gardens, Edinburgh.*
1872	Janson, Frederick Halsey, F.L.S., 41, *Finsbury-circus, E.C.*
1878	Jeans, J. Stephen, *Victoria Mansions, Victoria-street, Westminster, S.W.*

Year of Election	
1890	Jepson, John,
1881	*Jersey, The Right Hon. the Earl of, P.C., 3, *Great Stanhope-street, W.*
1881	Johnson, Edwin Eltham, 110, *Cannon-street, E.C.*
1871	Johnson, Edmund, 1, *Furnival-street, Holborn, E.C.*
1891	Johnson, George, 113, *Victoria-road, Darlington.*
1888	Johnson, John Grove, 23, *Cross-street, Finsbury, E.C.*
1880	Johnson, Walter, *Rounton Grange, Northallerton.*
1872	Johnston, Francis John, *Lamas, Chislehurst.*
1891	Johnston, R. M. (*Government Statist of Tasmania*), *Hobart, Tasmania.*
1883	Johnston, Thomas, *Broomsleigh-park, Seal, Sevenoaks.*
1878	Johnstone, Edward, *Nightingale-lane, Clapham-common, S.W.*
1884	*Jones, Edwin, J. P., 141, *Cannon-street, E.C.*
1878	Jones, Henry R. Bence, *Board of Trade, Whitehall-gardens, S.W.*
1874	Jones, Herbert, 15, *Montpelier-row, Blackheath, S.E.*
1888	Jones, J. Mortimer, 153, *Highbury New-park, N.*
1887	Jones, John Walter, 58, *Cheapside, E.C.*
1887	Jones, Lewis Davies,
1877	Jones, Theodore Brooke, 70, *Gracechurch-street, E.C.*
1888	*Jordan, William L., 25, *Jermyn-street, S.W.*
1858	Jourdan, Francis, 14, *Gledhow-gardens, South Kensington, S.W.*
1890	Joyner, Robert Batson, *Haidarabad, Sindh, India.*
1889	Justican, Edwin, F.I.A., *St. Mildred's House, Poultry, E.C.*

Year of Election.	
1873	Kay, Duncan James, *Drumpark, Dumfries, N.B.*
1877	Kealy, James William, 26, *Moorgate-street, E.C.*
1885	Keen, William Brock, 3, *Church-court, Old Jewry, E.C.*
1874	Kelly, Charles, M.D., F.R.C.P., *Worthing, Sussex.*
1884	Kelly, Edward Festus, 51, *Great Queen-street, Lincoln's-inn-fields, W.C.*
1867	Kelly, Edward Robert, A.M., 51, *Great Queen-street, Lincoln's-inn-fields, W.C.*
1883	KELTIE, JOHN SCOTT, 52, *Cromwell-avenue, Highgate, N.*
1884	Kemp, John, 46, *Cannon-street, E.C.*
1889	Kempson, William (Alderman), *Leicester.*
1884	*KENNEDY, CHARLES MALCOLM, C.B., *Foreign Office, S.W., and* 27, *Kensington-gate, W.*
1886	Kennedy, John Gordon, *Santiago, Chile.*
1878	Kennedy, J. Murray, *New University Club, St. James's-street, S.W.*
1878	Kennedy, Thomas, F.C.A. 11, *Old Jewry-chambers, E.C.*
1881	*Kennett-Barrington, Sir V. Hunter, M.A., LL.M., Cantab., 65, *Albert Hall Mansions, S.W.*
1883	*Keynes, John Neville, M.A., B.Sc. 6, *Harvey-road, Cambridge.*
1887	Kidd, Benjamin, *Inland Revenue Office, Somerset House, W.C.*
1890	Killik, Stephen H. M., 30, *Winchester House E.C.*
1884	Kimber, Henry, M.P., 79, *Lombard-street, E.C.*
1852	Kimberley, The Right Honourable the Earl of, M.A., P.C., 35, *Lowndes-square, S.W.*
1883	*King, Bolton, B.A., *Toynbee Hall,* 28, *Commercial-street, E.*
1888	King, John, F.S.A.A., 59, *St. Thomas's-road, Chorley, Lancashire.*
1884	Kirby, Horace Woodburn, F.C.A., 19, *Birchin-lane, E.C.*
1888	*Kitson, Sir James, Bart., J.P., *Gledhow Hall, Leeds.*
1889	Kloetgen, W. J. H., 16, *Watling-street. E.C.*
1889	Klugh, Arthur George, F.S.A.A., 3, *Newgate-street, E.C.*

Year of Election.	
1890	Knox, Hon. John Jay, *National Bank of the Republic, New York, U.S.A.*
1878	*Kusaka, Yoshio, *First National Bank, Tokio, Japan.*
1883	Last, William Harrison,
1885	Latham, Baldwin, M. Inst. C.E., 7, *Westminster-chambers, S.W.*
1874	Lawes, Sir John Bennett, Bart., LL.D., F.R.S., F.C.S., *Rothamsted-park, St. Albans.*
1878	Lawrence, Alexander Macclesfield, 18, *St. Helen's-place, E.C.*
1891	Lawrence, James, 8, *Tenter-terrace, Morpeth.*
1873	Lawrie, James, F.R.G.S., *Bellefield, Lanark, N.B.*
1873	LAWSON, ROBERT, LL.D. (*Inspector-General of Army Hospitals*), 20, *Lansdowne-road, Notting-hill, W.*
1891	Lawson, Robertson, 34, *Old Broad-street, E.C.*
1890	Lawson, William Ramage, 57, *Fitzjohn's-avenue, Hampstead, N.W.*
1883	*Leadam, Isaac Saunders, M.A., 1, *The Cloisters, Temple, E.C.*
1890	Leakey, James, *Fleetwood, Maldon-road, Wallington, Surrey.*
1886	Leathes, Stanley M., *Trinity College, Cambridge.*
1883	Lee, Henry, *Reform Club, S.W.*
1886	*Lee, Sir Joseph C., *Mosley-street, Manchester.*
1884	Lee, William, *Fairlands, Worplesdon, Guildford, Surrey.*
1879	*Leete, Joseph, 36, *St. Mary-at-hill, E.C., & Eversden, S. Norwood-park.*
1877	LEFEVRE, THE RIGHT HON. GEORGE SHAW, M.P., M.A., J.P. (*Honorary Vice-President*), 18, *Bryanston-square, W.*
1877	*Leggatt, Daniel, LL.D., 5, *Raymond-buildings, Gray's-inn, W.C.*

Year of Election.	
1880	Leighton, Stanley, M.P., *Sweeney Hall, Oswestry, Salop.*
1887	Leitch, Alexander, 17, *King William-street, E.C.*
1888	*Le Poer-Trench, Col. The Hon. W., R.E., J.P., 3, *Hyde Park-gardens, W.*
1887	*Le Roy-Lewis, Herman, B.A. (*Trinity College, Cambridge*), *Westbury House, Petersfield, Hants.*
1889	Lescher, Herman, 6, *Clement's-lane, Lombard-street, E.C.*
1885	Lever, Ellis, *Culcheth Hall, Bowdon, Cheshire.*
1862	Lewis, Robert, 1, *Bartholomew-lane, E.C.*
1888	*Liberty, A. Lasenby, 13, *Cornwall-terrace, Regent's-park, N.W.*
1877	Ligertwood, Thomas, M.D., F.R.C.S., *Royal Hospital, Chelsea, S.W.*
1884	*Lines, William Edward, *c/o R. S. Lines, Noel House, Hertford.*
1878	Lloyd, Thomas, 20, *Bucklersbury, E.C.*
1879	Lloyd, Wilson, F.R.G.S., *Myvod House, Wood-green, Wednesbury.*
1888	Loch, Charles S., B.A., *Hedge Row Cottage, Queen Anne's-gardens, Bedford-park.*
1882	*LONGSTAFF, GEORGE BLUNDELL, M.A., M.D., *Highlands, Putney Heath, S.W.*
1888	Lord, John, 54, *Springfield-road, South Hampstead, N.W.*
1876	*Lornie, John Guthrie, J.P., *Rosemount, Kirkcaldy* (*of Birnam and Pitcastle*), *N.B.*
1834	Lovelace, The Right Honourable the Earl of, F.R.S., *East Horsley-park, Ripley, Surrey.*
1886	*Low, Malcolm, M.P., 22, *Roland-gardens, S.W.*
1889	Lowies. John, *Hill-crest, Darenth-road, Stamford-hill, N.*
1865	LUBBOCK, THE RIGHT HON. SIR JOHN, BART., M.P., F.R.S. (*Trustee*), *High Elms, Beckenham, Kent.*
1878	Lucas, Sir Thomas, Bart., J.P., 37, *Great George-street, Westminster, S.W.*
1885	Luckie, David Mitchell, J.P., *Wellington, New Zealand.*

Year of Election

1885 Mabbs, The Rev. Goodeve,
12, *Fairlawn-grove, Chiswick, W.*
1875 *Mabson, Richard Rous
20, *Bucklersbury, E.C.*
1873 *Macandrew, William, J.P.,
Westwood, near Colchester.
1873 McArthur, Alexander, M.P.,
79, *Holland-park, W.*
1890 McAuslane, James (*Dunster House, Mincing-lane, E.C.*),
Glenrose, Balham Park-road, S.W.
1891 MacBrayne, John Burns,
Lilybank House, Hillhead, Glasgow.
1884 McCabe, William, LL.B., F.I.A.,
17, *Clarence-square, Toronto, Canada.*
1888 McCankie, James,
34, *St. Andrew's-square, Edinburgh.*
1867 M'Clean, Frank,
Rusthall House, Tunbridge Wells.
1873 McDermott, Edward,
Hill Side, Grove-park, Camberwell, S.E.
1887 Macdonald, Andrew J.,
40, *Threadneedle-street, E.C.*
1872 Macdonell, John,
Room 183, *The Royal Courts of Justice, Strand, W.C.*
1873 *McEwen, Laurence T.,
c/o. R. A. McLean, 1, *Queen Victoria-street, E.C.*
1890 McKay, Andrew Davidson,
13, *York-street, Liverpool.*
1890 Mackay, John Kirkland,

1886 *Mackenzie, Colin, F.R.G.S.,

1878 McKewan, William,
Elmfield, Bickley, Kent.
1876 *McLean, Robert Allan, F.R.G.S.,
1, *Queen Victoria-street, E.C.*
1863 *Maclure, John William, M.P., J.P., &c.,
Carlton Club; The Home, Whalley Range, Manchester
1888 McNiel, Henry
5, *Cross-street, Manchester.*
1875 Macpherson, Hugh Martin, F.R.C.S. (*Inspector-General*),
14, *St. James's-square, S.W.*
1887 Macpherson, Walter Charles Gordon,
Howrah, E.I.R., Bengal, India.
1883 Macqueen, Robert Davidson Barkly,
20, *Upper Addison-gardens, Kensington, W.*
1882 MacRosty, Alexander,
13, *King's Arms-yard, E.C.; West Bank, Esher.*

Year of Election.	
1889	McVail, John C., M.D., &c., 2, *Strathallan-terrace, Dowanhill, Glasgow.*
1891	Maidment, Thomas, 1, *Gloucester-terrace, Southsea.*
1887	Makower, Maurice, 11, *Randolph-crescent, Maida Vale, W.*
1887	Malleson, Frank R., *Dixton Manor House, Winchcombe, Cheltenham.*
1887	Mann, James Saumarez, M.A., 6, *Blandford-square, N.W.*
1887	Mann, William Edward, 23, *Jewin-street, E.C.*
1884	*Manson, Frederick William, *Wellfield, Muswell Hill, N.*
1888	Manuel, James, *c/o The London and Provincial Bank, Cardiff.*
1890	Manwaring, George,
1877	*Maple, John Blundell, M.P., 8, *Clarence-terrace, Regent's-park, N.W.*
1889	Marks, Harry H., *Loudoun Hall, N.W.*
1875	Marsh, Alfred, 85, *Gracechurch-street, E.C.*
1880	*Marshall, Professor Alfred, M.A., *Balliol Croft, Madingley-road, Cambridge.*
1887	Marshall, W. Bayley, M. Inst. C.E., M.Inst. M.E., 15, *Augustus-road, Edgbaston, Birmingham.*
1887	Martin, James, 4, *King-street, Cheapside, E.C.*
1874	*MARTIN, JOHN BIDDULPH, M.A., F.Z.S. (*Vice President and Foreign Secretary*), 17, *Hyde-park-gate, S.W.*
1872	*MARTIN, RICHARD BIDDULPH, M.A. (*Treasurer*), 68, *Lombard-street, E.C., and Chislehurst.*
1876	*Martin, Thomas Jaques, 84, *Collins-street West, Melbourne, Victoria.*
1879	Martin, Waldyve Alex. Hamilton, *The Upper Hall, Ledbury, Herefordshire.*
1884	Mason, William Arthur, 31*a*, *Colmore-row, Birmingham.*
1875	*Mathers, John Shackleton, *Hanover House, Leeds, Yorkshire.*
1883	Mathieson, Frederic Coxhead, *Beechworth, Hampstead, N.W.*
1891	Maxwell, Robert George, 22*a*, *St. George's-street, Cape Town.*
1874	May, Frank, *Bank of England, Threadneedle-street, E.C.*

Year of Election.	
1882	Medhurst, John Thomas, *Clay-hill, White Hart-lane, Tottenham.*
1883	*Medley, George Webb, 21, *Park-street, Park-lane, W.*
1853	*Meikle, James, F.I.A., 6, *St. Andrew's-square, Edinburgh.*
1890	Merriman, Hon. John Xavier, *Cape Town, Cape of Good Hope.*
1884	Merton, Zachary, 18, *Chesham-place, S.W.*
1875	Mildmay, Henry Bingham, J.P., 8, *Bishopsgate-street Within, E.C.*
1873	Millar, William Henry, *Cleveland Lodge, New Park-road, Brixton-hill, S.W.*
1890	Miller, Gordon William (*Admiralty, Spring Gardens, S.W.*), 37, *Granville-park, Lewisham, S.E.*
1877	Miller, Robert Ferguson, *Ramsden-square, Barrow-in-Furness.*
1879	Miller, William, 67, *Queen Victoria-street, E.C.*
1888	Mills, Sir Charles, K.C.M.G., C.B., 7, *Albert Mansions, Victoria-street, S.W.*
1889	Mills, Major Henry Farnsby, *Junior United Service Club, Charles-street, S.W.*
1882	Milnes, Alfred, M.A., 22*a*, *Goldhurst-terrace, S. Hampstead, N.W.*
1874	*Mocatta, Frederick D., F.R.G.S., 9, *Connaught-place, W.*
1878	Moffat, Robert J., *Cherry Hinton Hall, near Cambridge.*
1888	*Molloy, William R. J., M.R.I.A. (*National Education Board*), 17, *Brookfield-terrace, Donnybrook, Dublin.*
1879	Moore, Alfred, C.E., *Queen's Chambers*, 2, *Ridgfield, Manchester.*
1887	Moore, Arthur Chisholm, 23, *Essex-street, Strand, W.C.*
1874	Moore, Charles Rendall, 137, *Brockley-road, Lewisham-road, S.E.*
1885	Moore, Harold Edward, 41, *Bedford-row, W.C.*
1878	*Moore, John Byers Gunning, *Loymount, Cookstown, Ireland.*
1874	*Morris, James, M.D., F.R.C.S., 13, *Somers-place, Hyde-park-square, W.*
1888	Morris, John (17, *Throgmorton-avenue, E.C.*), 13, *Park-street, Grosvenor-square, W.*
1891	Morrison, Rev. William Douglas, 6, *Heathfield-road, Wandsworth-common, S.W.*
1877	Mort, William, 1, *Stanley-crescent, Notting-hill, W.*

Year of Election	
1885	*Mosley, Tonman, *Bangors, Iver, Uxbridge.*
1847	*Mouat, Frederic John, M.D., F.R.C.S., LL.D. (*President*), 12, *Durham-villas, Kensington, W.*
1886	Mowbray, Robert Gray Cornish, M.P. 10, *Little Stanhope-street, S.W.*
1886	Moxon, Thomas B., *Manchester and County Bank, Limited, Manchester.*
1889	Muir, Robert, jun., *Clydesdale, Wolseley-road, Crouch-end, N.*
1883	Muirhead, Henry James, *Oakwood, Farquhar-road, Upper Norwood, S.E.*
1880	Mulhall, Michael George, *Standard Office, Buenos Ayres.*
1890	Mumby, Bonner Harris, M.D., *Portsmouth.*
1878	*Mundella, The Right Hon. Anthony John, M.P., F.R.S. 16, *Elvaston-place, Queen's-gate, S.W.*
1891	Murphy, Shirley Foster, M.R.C.S., 41, *Queen Anne-street, Cavendish-square, W.*
1878	Murray, Adam, *Hazeldean, Kersal, Manchester*
1890	Musgrave, James, *Brookland, Heaton, Bolton.*

1888	Narraway, W. F., *Crooms Hill House, Greenwich, S.E.*
1889	Nash, William, M.D., M.R.C.S. (*Brigade-Surgeon*), 18, *Victoria-street, S.W.*
1878	*Nathan, Henry, *Dashwood House, New Broad-street, E.C.*
1854	Neild, Alfred, *Mayfield Print Works, Manchester.*
1869	Neison, Francis Gustavus Paulus, F.I.A., 93, *Adelaide-rd., S. Hampstead, & 19, Abingdon-st., S.W.*
1885	Nelson, Edward Montague, J.P., *Hanger Hill House, Ealing, W.*
1877	Nevill, Charles Henry, 11, *Queen Victoria-street, E.C.*
1862	Newbatt, Benjamin, F.I.A., F.R.G.S., 15, *St. James's-square, S.W.*
1888	Newgass, Benjamin, 7, *Lothbury, E.C.*
1883	Newmarch, Mrs. Elizabeth, *Mulnauth, 5, Harrold-road, Upper Norwood, S.E.*

Year of Election.	
1889	Newsholme, Arthur, M.D., 15, *College-road, Brighton.*
1888	Newton, Alfred J., *Northwood, Chislehurst, Kent.*
1889	Newton, Henry William (Alderman), 2, *Ellison-place, Newcastle-on-Tyne.*
1878	Nicholson, Professor J. Shield, M.A., D.Sc., *University of Edinburgh.*
1858	Nightingale, Miss Florence, 10, *South-street, Park-lane, W.*
1877	Nix, Samuel Dyer, F.C.A., 3, *King-street, Cheapside, E.C.*
1871	*Noble, Benjamin, F.R.A.S., *North-Eastern Bank, Newcastle-on-Tyne.*
1883	Norfolk, J. Ernest Walter,
1877	Norman, H.E. General Sir Henry Wylie, K.C.B., G.C.M.G. (*Governor of Queensland*), *Brisbane, Queensland.*
1878	Northbrook, The Right Hon. the Earl of, G.C.S.I., D.C.L., 4, *Hamilton-place, Piccadilly, W.*
1878	Notthafft, Theodor, *c/o Discount Bank, St. Petersburg.*
1888	Oakley, Sir Henry (*General Manager, Great Northern Railway*). 37, *Chester-terrace, Regent's-park, N.W.*
1891	Oates, John, F.S.A.A., 10, *Saltoun-road, Brixton, S.W.*
1884	Odgers, William Blake, LL.D., 4, *Elm-court, Temple, E.C.; & Fitzjohn's-avenue, N.W.*
1880	*Oelsner, Isidor,
1887	O'Galligan, George R., C.E.,
1862	Ogbourne, Charles Henry, A.I.A. 29, *Dalhousie-square, Calcutta.*
1885	Ogle, William, M.A., M.D., F.R.C.P., &c. *General Register Office, Somerset House, W.C.*
1885	*Oldham, John, *River Plate Telegraph Company, Montevideo.*
1884	Oldroyd, Mark, M.P., *Hyrstlands, Dewsbury, Yorkshire.*
1878	Oppenheim, Henry, 16, *Bruton-street, Bond-street, W.*

Year of Election

1877 Ormond, Richard,
24, Grainger-street West, Newcastle-on-Tyne.

1889 Oung, Moung Hla,
45, Lansdowne-row, Calcutta.

1887 Owen, Evan F., A.I.A.,
Office of Government Statist, Melbourne, Victoria.

1887 *Page, Edward D., (*Box* 3382,)
c/o Faulkner, Page, & Co., New York City, U.S.A.

1886 Pain, James,
St. Mary's-street, Ely.

1866 *PALGRAVE, ROBERT HARRY INGLIS, J.P., F.R.S.,
Belton, Great Yarmouth, Norfolk.

1879 Palmer, George, J.P.,
The Acacias, Reading.

1884 Palmer, Joseph Thomas
8, *Wine Office-court, Fleet-street, E.C.*

1887 Pankhurst, Richard Marsden, LL.D. (8, *Russell-square, W.C.*),
10, *St. James's-square, Manchester.*

1888 Pannell, William Henry,
Library-chambers, Basinghall-street, E.C.

1878 Park, David Francis, C.A., F.F.A., A.I.A.,
17, *Change-alley, Cornhill, E.C.*

1887 Parker, Archibald,
Camden-wood, Chislehurst, Kent.

1878 Parry, Thomas,
Grafton-place, Ashton-under-Lyne.

1879 Partridge, Henry Francis, L.D.S., &c.,
Sussex House, Sussex-place, South Kensington, S.W.

1883 Paterson, John,
1, *Walbrook, E.C.*

1888 Pattullo, James Durie,
31, *St. Swithin's-lane, E.C.*

1877 Paul, Henry Moncreiff,
12, *Lansdowne-crescent, Notting-hill, W.*

1878 Paulin, David,
44, *Moray-place, Edinburgh.*

1884 *Peace, Walter,
21, *Finsbury-circus, E.C.*

1857 *Pearson, Professor Charles Henry, M.A.,
c/o Lady Pearson, 75, Onslow-square, S.W.

1880 *Pease, Sir Joseph Whitwell, Bart., M.P.,
Hutton Hall, Gisborough, Yorks.

1876 *Peek, Sir Henry William, Bart.,
Wimbledon House, S.W.

Year of Election.	
1886	Pembroke, The Right Hon. the Earl of, *Wilton House, Salisbury.*
1880	Pender, Sir John, K.C.M.G., 18, *Arlington-street, S.W.*; 50, *Old Broad-street, E.C.*
1891	Penn-Lewis, William, 8, *Halford-road, Richmond, Surrey.*
1887	Percival, William, *Constitutional Club, S.W.*
1888	Perratt, William Henry, A.I.A., 193, *The Grove, Hammersmith. W.*
1890	Peters, John Wyatt, *The Gables, Grove-road S., Southsea.*
1883	Petheram, Frederick William, F.C.A., 2, *Lombard-court, E.C.*
1886	Peto, Sir Henry, Bart., M.A., *Fleet House, Weymouth.*
1887	Phelps, Colonel A., 23, *Augustus-road, Edgbaston, Birmingham.*
1886	*Phelps, The Rev. Lancelot Ridley, M.A., *Oriel College, Oxford.*
1874	Phené, John Samuel, LL.D., F.S.A., 32, *Oakley-street, S.W.*
1879	Philips, Herbert, 35, *Church-street, Manchester.*
1877	Phillipps, Henry Matthews, 41, *Seething-lane, E.C.*
1887	Phillips, Charles H., J.P. (*Registrar-General of Trinidad*), *Court House, Port of Spain, Trinidad.*
1883	Phillips, John Orwell, *Horseferry-road, Westminster, S.W.*
1871	*Pickering, John, F.R.G.S., F.S.A., 86, *Thicket-road, Anerley, S.E.*
1885	Pierrard, Paul, 24, *Coleman-street, E.C.*
1878	*Pim, Joseph Todhunter, *Rinnamara, Monkstown, County Dublin.*
1838	*Pinckard, George Henry, J.P., 12, *Grove-road, St. John's-wood, N.W.*
1886	Pink, J. Francis, 62, *Chandos-street, Strand, W.C.*
1885	Pitman, Walter Hayward, 30, *Newgate-street, E.C.*
1890	Pittar, Thomas J, *H.M. Custom House, E.C.*
1879	Pixley, Francis William, 23, *Linden-gardens, W.*
1881	Planck, Charles, M.R.C.S. (*Deputy Surgeon-General*), *Allahabad, India.*
1883	Platt, James, *Rookwood, Hampstead, N.W.*

Year of Election.	
1861	Plowden, Sir Wm. Chicele, K.C.S.I., M.P. (5, *Park-crescent, Portland-place, W.*); *Wyke Hill, Gillingham, Dorset.*
1888	Plumb, Benjamin M.,
1869	Pochin, Henry Davis, J.P., *Bodnant Hall, Eglwysbach, R.S.O., Denbighshire.*
1888	Pollard, James, *Chamber of Commerce, Edinburgh.*
1884	Polson, John, *West Mount Paisley, N.B.*
1891	Pope, Henry Richard, 31, *New Bridge-street, E.C.*
1891	Potter, Henry, *Folkestone Villa, Elm-grove, Peckham, S.E.*
1879	*Powell, Francis Sharp, M.P. (*Horton Old Hall, Bradford*), 1, *Cambridge-square, Hyde Park, W.*
1888	Powell, James Heslop, 33, *Cornhill, E.C.*
1871	Power, Edward, 6, *Crosby-square, E.C.*
1884	Power, John Danvers, 3, *Westminster-chambers, Victoria-street, S.W.*
1877	*Prance, Reginald Heber, *Frognal, Hampstead, N.W.*
1877	Praschkauer, Maximilian, 109, *Fenchurch-street, E.C.*
1867	*Pratt, Robert Lindsay, 80, *Bondgate, Darlington.*
1891	Preston, Sydney E, 21, *Great Winchester-street, E.C.*
1888	Price, Henry Sherley, *Woodbury Lodge, Breakspears-road, St. John's, S.E.*
1887	*Price, L. L., M.A., *Oriel College, Oxford.*
1877	Price-Williams, Richard, M. Inst. C.E., 32, *Victoria-street, S.W.*
1887	Probyn, Leslie Charles, 79, *Onslow-square, S.W.*
1889	Probyn, Major Clifford, 55, *Grosvenor-street, Grosvenor-square, W.*
1884	*Proctor, William, 89, *Corporation-street, Manchester.*
1886	Provand, Andrew Dryburgh, M.P., *Lloyd's House, Manchester.*
1871	Puleston, Sir John Henry, M.P., 2, *Bank-buildings, Princes-street, E.C.*
1886	Pulley, Joseph, 90, *Piccadilly, W.*
1885	Purvis, Gilbert, *Ingle Neuk, Brackley-road, Beckenham, Kent.*

Year of Election.	
1874	Quain, Sir Richard, Bart., M.D., F.R.S., F.R.C.P., 67, *Harley-street, W.*
1888	Quirk, William Henry, 9, *Gracechurch-street, E C.*
1883	Rabbidge, Richard, F.C.A., 32, *Poultry, E.C.*
1872	*Rabino, Joseph (*Chief Manager*). *Imperial Bank of Persia, Teheran.*
1888	*Radcliffe, Sir David. J.P., *Thurstaston Hall, near Birkenhead.*
1858	*Radstock, The Right Honourable Lord, *Mayfield, Woolston, Southampton.*
1888	Rae, George, *Redcourt, Birkenhead.*
1885	RAE, JOHN, M.A., 77, *Disraeli-road, Putney, S.W.*
1887	Raffalovich, Arthur, 43, *Rue de Courcelles, Paris*
1877	Raikes. Lieut.-Col. George Alfred, F.S.A., F.R. His. Soc., 63, *Belsize-park, Hampstead, N.W.*
1860	Ramsay, Alexander Gillespie, F.I.A., *Canada Life Assurance Co., Hamilton, Canada West.*
1885	Randell, James S., 19, *Alfred-street, Bath.*
1880	Rankin, James, M.P., 35, *Ennismore-gardens, Prince's Gate, S.W.*
1881	Raper, Sir Robert George, *Chichester.*
1884	Raphael. Alfred, 87, *Alexandra-road, N.W.*
1889	Raphael, Herbert H., 4. *Cumberland-place, Regent's-park, N.W.*
1859	Rathbone, P. H., *Greenbank Cottage, Liverpool.*
1878	Rathbone, William, M.P., 18, *Prince's-gardens, Prince's-gate, S.W.*
1884	*Ravenscroft, Francis. *Birkbeck Bank, Chancery-lane, W.C.*

Year of Election	
1874	*Ravenstein, Ernest George, F.R.G.S., 91, *Upper Tulse-hill, Brixton, S.W.*
1889	Rawcliffe, Henry, J.P. (Alderman), *Beechwood, Rock Ferry, Birkenhead.*
1886	Rawlins, Frederick, *Southport, Queensland.*
1877	*Rawlins, Thomas, 45, *King William-street, E.C.*
1835	Rawson, Sir Rawson W., K.C.M.G., C.B. (*Honorary Vice-President*), 68, *Cornwall-gardens, Queen's-gate, S.W.*
1888	Read, Thomas William, 30, *Castle-street, Liverpool.*
1890	Reade, Herbert, 10, *Herbert Crescent, Hans-place, S.W.*
1889	*Reed, Thomas, F.C.A., 63, *King-street, South Shields.*
1888	Reid, Herbert Lloyd, *Ardentinney, Balham Park-road, Balham, S.W.*
1888	Rew, Robert Henry, 57, *Netherwood-road, W.*
1886	Rhens, Robert, 20, *Fassett-square, Dalston, E.*
1888	Rhodes, George Webber, 131, *Wool Exchange, E.C.*
1879	Rhodes, John George, 46, *St. George's-road, S.W.*
1890	Richards, Fred., 29, *Northampton-square, E.C.*
1888	Richardson, J. H., 8, *Finch-lane, Cornhill, E.C.*
1888	Richmond, Edwin, *Gladstone-buildings, Sheffield.*
1891	Ridge, Samuel H., B.A., F.R.G.S., F.R. Hist. S. 257, *Victoria Parade, E. Melbourne, Victoria.*
1873	Ripon, The Most Hon. the Marquess of, K.G., F.R.S, &c., 9, *Chelsea Embankment, S.W.*
1889	Rippon, Robert Whitfield, LL.B., 2, *The Cloisters, Temple, E.C.*
1887	Roberts, Arthur Herbert, F.C.A., F.R.G.S., *Caledonian Chambers, St. Mary-street, Cardiff.*
1882	Roberts, Edward, F.R.A.S. (*Nautical Almanac Office*), 3, *Verulam-buildings, Gray's Inn, W.C.*
1890	Roberts, Sir William, M.D., F.R.S., 8, *Manchester-square, W.*
1885	Robertson, Thomas Stewart, *Collins-street West, Melbourne, Victoria.*
1887	Robinson, Henry James, 31, *Spencer-road, Putney, S.W.*

Year of Election.

1885 Rodger, Adam Kier,
81, *Renfield-street, Glasgow.*
1886 Roechling, Herman A., A.M. Inst. C.E.,
23, *Highfield-street, Leicester.*
1880 *Ronald, Byron L.,
14, *Upper Phillimore-gardens, W.*
1873 *Rosebery, The Right Hon. the Earl of, LL.D., F.R.S.,
38, *Berkeley-square, W.*
1891 Ross, Frederick William Forbes, M.B , C.M.,
New Brighton, Cheshire.
1865 Ruck, George Thomas,
The Hawthorns, Dorville-road, Lee, S.E.
1890 Ruffer, Marc Armand, M.A., M.D., B.Sc. (Oxford),
19, *Iddesleigh Mansions, Westminster, S.W.*
1879 Runtz, John,

1888 Rusher, Edward Arthur, F.I.A.,
142, *Holborn Bars, E.C.*
1886 Russell, Arthur B., A.C.A.,
11, *Ludgate-hill, E.C.*; 20, *Beacon-hill, Camden-rd., N.*
1878 Russell, Richard F.,
8, *John-street, Adelphi, W.C.*
1887 Russell, Thomas, C.M.G.,
59, *Eaton-square, S.W.*
1890 Rutherford, Frederick William,
54, *St. Vincent-street, Glasgow.*
1873 Rutherford-Elliot, J. G.,
Elphinstone, Tyndall's Park-road, Clifton, Bristol.

1887 Sacré, Alfred Louis, C.E.,
60, *Queen Victoria-street, E.C.*
1873 *Salisbury, The Most Hon. the Marquess of, K.G., P.C., F.R.S.,
20, *Arlington-street, W.*
1881 Salmon, James,
Tower Chambers, Finsbury Pavement, E.C.
1875 *Salomons, Sir David Lionel, Bart., J.P.,
Broom-hill, Tunbridge Wells.
1876 Salt, Thomas, M.P.,
Weeping Cross, Stafford.
1868 Samuelson, Sir Bernhard, Bart., M.P., F.R.S.,
56, *Prince's-gate, Hyde-park, S.W.*
1888 Sandell, Edward, F.C.A.,
181, *Queen Victoria-street, E.C.*

Year of Election	
1889	Sandell, Frederic David, 181, *Queen Victoria-street, E.C.*
1891	Sarda, Pandit Har Bilas, B.A., M.R.A.S., *Government College, Ajmere, India.*
1886	Sauerbeck, Augustus, 4, *Moorgate-street-buildings, E.C.*
1877	Saunders, Charles Edward, M.D., *County Asylum, Hayward's Heath, Sussex.*
1852	Saunders, James Ebenezer, F.G.S., J.P., 9, *Finsbury-circus, E.C.*
1888	Sawyer, Lucian Willard, *Billiter-square-buildings, E.C.*
1887	*Scarth, Leveson, M.A., *Kererstone, Manor-road, Bournemouth.*
1883	Schidrowitz, Samuel, 102, *Oxford-gardens, Notting-hill, W.*
1877	Schiff, Charles, 22, *Lowndes-square, S.W.*
1891	Schloss, David F., 1, *Knaresborough-place, Cromwell-road, S.W.*
1877	Schneidau, Charles John, 6, *Westwick-gardens, West Kensington-park, W.*
1891	Schooling, John Holt, 19, *Abingdon-street, Westminster, S.W.*
1883	*Schwann, John Frederick, *Oakfield, Wimbledon, S.W., and* 6, *Moorgate-street, E.C.*
1883	Sclanders, Alexander, 10, *Austin Friars, E.C.*
1885	Scott, James Henry, *St. Mildred's House, Poultry, E.C.*
1885	Scott, Rev. John Davidson, M.A., *St. Oswald's, Chester.*
1888	Scotter, Charles (*General Manager*), *Waterloo Station, Waterloo-road, S.E*
1887	SEATON, EDWARD, M.D., LOND., F.R.C.P., 35, *George-street, Hanover-square, W.*
1880	*Seeley, Charles, jun., *Sherwood Lodge, Nottingham.*
1886	Selwyn, Captain Charles W., M.P., 21, *Lowndes-square, S.W.*
1886	Seyd, Ernest J. F., 38, *Lombard-street, E.C.*
1873	Seyd, Richard, 38, *Lombard-street, E.C.*
1888	Shaw, James Charles, 35, *Leinster-gardens, Hyde Park, W.*
1886	Shaw-Stewart, Michael Hugh, M.P., D.L.,
1879	Shepheard, Wallwyn Poyer Burnett, M.A., 24, *Old Square, Lincoln's Inn, W.C.*

Year of Election.	
1885	Sherwin, Joseph Henry, 16, *Whitehall-place, S.W.*
1888	Shillcock, Joshua, B.A., *Bank of England. West Branch, Burlington-gardens, W.*
1888	Shuttleworth, Thomas G., *Queen's Insurance-buildings, Church-street, Sheffield.*
1871	Sidgwick, Professor Henry, M.A., *Trinity College, Cambridge.*
1886	Silver, Stephen William, 3, *York-gate, Regent's-park, N.W.*
1878	Simmonds, G. Harvey, 1, *Whitehall, S.W.*
1850	Singer, Charles Douglas, 53, *The Common, Upper Clapton, E.*
1886	Sitwell, Sir George Reresby, Bart., J.P., *Renishaw Hall, Chesterfield.*
1882	Skinner, Charles Weeding, *Hill Crest, Theydon Bois, Essex.*
1881	Skrine, Francis Henry, J.P., *c/o Messrs. King, Hamilton, and Co., Calcutta, India.*
1888	Slade, Alfred Thomas, *Wardrobe-chambers, Queen Victoria-street, E.C.*
1888	Slade, Francis William, 17, *Victoria-street, Westminster, S.W.*
1883	Sly, Richard Stevens, F.R.G.S., *Fern Villa, Queen's-road, New Cross Gate, S.E.*
1869	Smee, Alfred Hutcheson, M.R.C.S., *The Grange, Wallington, Surrey.*
1886	*Smith, Arthur Manley, 29, *Lincoln's Inn-fields, W.C.*
1878	*Smith, Charles, M.R.I.A., F.G.S., Assoc. Inst C.E., *c/o Dr. Gilbert, F.R.S., Harpenden, St. Albans.*
1883	*Smith, The Hon. Sir Donald A., K.C.M.G., LL.D., 1157, *Dorchester-street, Montreal, Canada.*
1871	Smith, E. Cozens, 1, *Old Broad-street, E.C.*
1883	Smith, E. Woodley, A.C.A., 28, *Budge-row, Cannon-street, E.C.*
1889	Smith, George Armitage, M.A., (Lond.), 26, *Regent's Park-road, N.W.*
1878	*Smith, George, LL.D, C.I.E., *Serampore House, Napier-road, Edinburgh.*
1888	Smith, H. Llewellyn, B.A. (Oxon), B.Sc. (Lond.), 49, *Beaumont-square, E.*
1889	Smith, Henry Wells, A.C.A., 8, *Norfolk-row, Sheffield.*
1877	Smith, Howard S., A.I.A., F.F.A. 37, *Bennett's Hill, Birmingham.*
1878	*Smith, James, *South Indian Railway, Trichinopoly, Madras Presidency.*

Year of Election.	
1891	Smith, James Parker, M.P., *Jordanhill, Partick, N.B.*
1877	Smith, John, 8, *Old Jewry, E.C.*
1879	Smith, John Fisher, 76, *Cheapside, E.C.*
1887	Smith, Joseph, *Oakeswell Hall, Wednesbury.*
1883	Smith, Samuel, M.P., 7, *Delahay-street, Westminster, S.W.*
1880	Smith, Thomas Sherwood, *Firgrove, Keynsham, near Bristol.*
1890	Smith, William Alexander, 21, *Castlereagh-street, Sydney, New South Wales.*
1888	Smith, Walter J., 19, *West Smithfield, E.C.*
1887	Suell, Arthur Henry, 27, *Mincing-lane, E.C.*
1884	Solomon, The Hon. Michael, C.M.G. (*Jamaica*), 99, *Fenchurch-street, E.C.*
1855	Sowray, John Russell, *Office of Woods, Forests, &c.*, 1, *Whitehall-place, S W*
1889	Spackman, J. Woolsey, *The Daltons, St. Albans.*
1889	Speirs, Edwin Robert, 90, *Queen-street, E.C.*
1891	Spence, James, 20, *Chepstow-place, W.*
1867	*Spencer, Robert James, 175, *King's-road, Southsea.*
1883	Spicer, Albert, *Woodford, Essex, and* 50, *Upper Thames-street, E.C.*
1856	*Sprague, Thomas Bond, M.A., F.I.A., 26, *St. Andrew-square, Edinburgh.*
1872	Spriggs, Joseph, *Foxton, near Market Harborough.*
1882	Stack, Thomas Neville, 3, *Church-lane, College-green, Dublin.*
1856	*Stainton, Henry Tibbats, F.R.S., *Mountsfield, Lewisham, S.E.*
1889	Stanton, Arthur G., 13, *Rood-lane, E.C., &* 70, *Granville-park, Blackheath, S.*
1877	Staples, Sir Nathaniel Alexander, Bart., *Lissan, Cookstown, Tyrone, Ireland.*
1880	Stark, James, 17, *King's Arms-yard, E.C.*
1880	Stephens, William Davies, J.P., 4, *Abbotsford-terrace, Newcastle-on-Tyne.*
1885	Stevens, Marshall, *Highfield House, Urmston, near Manchester.*

Year of Election.	
1877	Stone, William Alfred, 90, *Cannon-street, E.C.; Hayton, Bramley Hill, Croydon.*
1889	Stow, Harry Vane, *National Liberal Club, Whitehall-place, S.W.*
1865	Strachan, Thomas Young, F.I.A., 88, *Cannon-street, E.C.*
1872	Strachey, General Richard, R.E., C.S.I., F.R.S., 69, *Lancaster-gate, W.*
1880	Strutt, Hon. Frederick, *Milford House, near Derby.*
1891	Stuart, Harold A., *Secretariat, Madras, India.*
1884	*Sugden, Richard, *The Farre Close, Brighouse, Yorkshire.*
1880	*Summers, William, M.P., *Reform Club, Pall Mall, S.W.*
1881	Sykes, George Samuel, 1, *Grant's-lane, Calcutta, India.*
1859	*Tait, Patrick Macnaghten, F.R.G.S., 2, *Highbury-crescent West, N.*
1889	Tarling, Charles, *Stoneleigh House, Warltersville-road, Crouch-hill, N.*
1889	Tattersall, William, *Hazelwood, Hale, Cheshire.*
1889	Tayler, Stephen Seaward (Alderman), 151, *Brixton-road, S.W.*
1880	Taylor, George, 6, *Queen Anne's-gate, S.W.*
1887	Taylor, R. Whately Cooke, *Frenchwood House, Preston.*
1888	*Taylor, Theodore Cooke, J.P., *Sunny Bank, Batley, Yorkshire.*
1884	Tempany, Thomas William, F.R.H.S., 25, *Bedford-row, W.C.*
1888	Temperley, William Angus, jun., 2, *St. Nicholas-buildings, Newcastle-on-Tyne.*
1880	Temple, Sir Richard, Bart., G.C.S.I., M.P., D.C.L., &c.,
1890	Tenney, John, *Exchequer and Audit Department, Somerset House, W.C.*
1891	Terrey, William, *Sheffield Water Department, Sheffield.*
1888	Theobald, John Wilson, 75, *Palmerston-buildings, E.C.*

Year of Election	
1889	Thodey, William Henry, 479, *Collins-street, Melbourne, Victoria.*
1888	Thomas, David Alfred, M.P., *Llanwern, near Newport, Mon.*
1887	Thomas, John, 18, *Wood-street, E.C.*
1879	Thomas, W. Cave, 8, *Fitzroy-street, Fitzroy-square, W.*
1864	*Thompson, Henry Yates, 26*a*, *Bryanston-square, W.*
1868	Thomson, James, 35, *Nicholas-lane, E.C.*
1871	Thomson, Thomas D., 57, *Moorgate-street, E.C.*
1890	Thring, The Right Hon. Lord, K.C.B., 5, *Queen's Gate-gardens, S.W.*
1889	Tims, James, 6, *Queen Anne-terrace, Battersea-park, S.W.*
1882	Tinker, James, *Hordlecliff, Lymington, Hants.*
1879	Tipping, William, *Oakfield House, Ashton-under-Lyne.*
1889	Touch, George Alexander, 47, *Goldhurst-terrace, N.W.*
1868	*Treatt, Frank Burford, J.P., *Fernmount, Bellenger River, New South Wales.*
1868	Tritton, Joseph Herbert, 54, *Lombard-street, E.C.*
1888	Trotter, John Townley, 27, *Brazennose-street, Manchester.*
1887	Tunley, George, 3, *Foley-avenue, Hampstead, N.W.*
1878	Turnbull, Alexander, 118, *Belsize-park-gardens, N.W.*
1890	Turnbull, Charles Corbett, *c/o W. A. Turnbull, J.P.*, 2, *Fenchurch-avenue, E.C.*
1890	*Turner, Rev. Harward, B.Sc., F.R.M.S., 23, *Rue Henri-Kolb, Lille (Nord), France.*
1885	Turner, William, *Board of Trade, Cardiff.*
1890	Tyldsley, Thomas, 68, *Trafford-street, Farnworth, near Bolton*
1889	Tyler, John W., *Southwold Lodge, Cleveland-road, South Woodford, E.*
1841	Tyndall, William Henry, F.I.A., *Morlands, Oxford-road, Redhill.*

Year of Election.	
1877	*Urlin, Richard Denny, 22, *Stafford-terrace, Phillimore-gardens, W.*
1880	Van de Linde, Gérard, F.C.A., 12, *Laurence Pountney-lane, Cannon-street, E.C.*
1888	Van Raalte, Marcus, 22, *Austin Friars, E.C.*
1884	Veevers, Richard, *Woningworth, Fulwood-park, Preston.*
1890	Venn, John, D.Sc., F.R.S. (*Caius College, Cambridge*), *Chine-crescent-road, Bournemouth.*
1889	Venning, Charles Harrison,
1888	Verdin, William Henry, J.P., *Winsford, Cheshire.*
1886	Vernon, The Right Hon. Lord, *Sudbury Hall, Derby.*
1876	Vigers, Robert, 4, *Frederick's-place, Old Jewry, E.C.*
1885	Vincent, Frederick James, A.I.A., 23, *Harvest-road, Holloway, N.*
1877	Vine, Sir John Richard Somers, 6, *Adelphi-terrace, W.C.*
1890	Walford, Ernest L., 2, *Shorter's-court, E.C.*
1890	Walkley, William Henry, *Hope House, Elthorne-road, Hornsey Rise, N.*
1882	Wallen, Robert, J.P., *Harlech, Hawthorn, near Melbourne, Victoria.*
1868	Wallis, Charles James, 93, *Brecknock-road, Camden-road, N.*
1880	Wallis, E. White, 49, *Clifton-hill, St. John's Wood, N.W.*
1888	Walmsley, Frederic, 49, *Hanging Ditch, Manchester.*
1876	Walter, Arthur Fraser, *Finchampstead, Wokingham, Berks.*

Year of Election.	
1850	Walter, John, 40, *Upper Grosvenor-street, W.*
1879	Wansey, Arthur H., *Sambourne, Stoke Bishop, Bristol.*
1888	Ward, Henry, 103, *Cannon-street, E.C., and Eaton-road, Sutton.*
1888	Warren, Reginald Augustus, J.P., *Preston-place, near Worthing.*
1888	Wartnaby, William Wade. *Market Harborough, Leicestershire.*
1886	Waters, Alfred Charles. *General Register Office, Somerset House, Strand, W.C.*
1865	Waterhouse, Edwin, B.A., A.I.A., F.C.A., 44, *Gresham-street, E.C.*
1883	Watson, T. Wilkinson, 183, *West George-street, Glasgow.*
1883	Watson, William Livingstone, 7, *Wetherby-gardens, South Kensington, S.W.*
1885	*Watt, William, 17, *Queen's-road, Aberdeen.*
1888	Webb, Henry Barlow, 7, *Warrior-square-terrace, St. Leonards-on-Sea.*
1873	Webster, James Hume, 14, *Aldford-street, Park-lane, W.*
1887	Weir, Archibald, M.A., Oxon., *Bendarroch, Ottery St. Mary, Devon.*
1873	*Welby, Sir Reginald Earle, K.C.B., *The Treasury, Whitehall, S.W.*
1874	Welch, Charles, *Guildhall, E.C. (Representing the Library Committee of the Corporation of the City of London.)*
1890	Weller, William Hamilton, *Roseleigh, Tolworth, near Surbiton, Surrey.*
1873	Wells, W. Lewis, 50, *Old Broad-street, E.C.*
1855	Welton, Thomas Abercrombie, *Rectory Grove House, Clapham, S.W.*
1879	Wenley, James Adams, *Bank of Scotland, Bank-street, Edinburgh.*
1886	Westhead, Thomas, *Castletown, Stafford.*
1879	*Westlake, John, Q.C., LL.D., *The River House,* 3, *Chelsea Embankment, S.W.*
1882	*Whadcoat, John Henry, *Crown Buildings, Old Broad-street, E.C.*
1883	*Whadcoat, William Edward, 18, *Highbury-crescent, N.*
1878	Wharton, James, *Edgehill, Netherhall-gardens, Fitz John's-avenue, N.W.*
1887	Whinney, Frederick, 8, *Old Jewry, E.C.*

Year of Election.

1859 Whitbread, Samuel, M.P.,
10, Ennismore-gardens, Princes-gate, S.W.
1887 *White, The Rev. George Cecil, M.A.,
Nursling Rectory, Southampton.
1863 White, Leedham,
25, Cranley-gardens, South Kensington, S.W.
1871 White, William,
23, Wynell-road, Forest-hill, S.E.
1888 Whitehead, Sir James, Bart., J.P., D.L., &c. (Alderman),
Highfield House, Catford.
1884 Whiteley, William,
Westbourne-grove, Bayswater, W.
1879 *Whitwill, Mark, J.P.,
Bristol.
1884 Wightman, Charles,
1, *Fenchurch-avenue, E.C.*
1888 Wilkinson, James H.,
9, *Priory-place, Doncaster.*
1875 Wilkinson, Thomas Read,
Manchester and Salford Bank, Manchester.
1860 Willans, John Wrigley,
The Woodlands, Kirkstall, Leeds.
1864 Williams, Frederick Bessant,
46, *Leicester-square, W.C.*
1881 *Williams, Henry Maunder,
188, *New Cross-road, S.E.*
1870 Williams, Henry Reader,
6, *Lime-street, E.C., and The Priory, Hornsey, N.*
1888 Williams, John,

1888 *Williams, Robert, Jun.,
20, *Birchin-lane, E.C.*
1888 Williamson, John W.,
5, *Stone-buildings, Lincoln's Inn, W.C.*
1888 Wills, John Tayler, B.A., F.R.G.S.,
273, *Vauxhall Bridge-road, S.W., and Esher, Surrey.*
1891 Wilson, Henry Joseph, M.P.,
Osgathorpe Hills, Sheffield.
1884 Wilson, James (*Deputy Commissioner*),
Shahpur, Panjab, India.
1874 *Wilson, Robert Porter,
5, *Cumberland-terrace, Regent's-park, N.W.*
1890 Winter, Alexander,
13, *Montague-street, Bloomsburg, W.C.*
1884 Wishart, G. D.,
8, *Livingstone-avenue, Sefton-park, Liverpool.*
1889 Woodford, Ethelbert G.,
Pretoria, Transvaal, South African Republic.
1887 Woodhouse, Coventry Archer,
30, *Mincing-lane, E.C.*

Year of Election.	
1888	Woolfe, Thomas Rodriques, A.C.A., 65, *Watling-street, E.C.*
1838	Woolhouse, Wesley Stoker Barker, F.R.A.S., *Alwyne Lodge, Alwyne-road, Canonbury, N.*
1890	Woollcombe, Robert Lloyd, LL.D., M.R.I.A., 14, *Waterloo-road, Dublin.*
1890	Worroll, Charles, *Adderley-street, Cape Town.*
1878	Worsfold, Rev John Napper, M.A., *Haddlesey Rectory, near Selby, Yorkshire.*
1888	Worsfold, William Basil, M.A. (Oxon.), *St. Stephen's Club, S.W.*
1887	Worthington, A. W., B.A., *Old Swinford, Stourbridge.*
1880	Wren, Walter, M.A. 7, *Powis-square, W.*
1883	Wright, Bryce McMurdo, F.R.G.S., F.Z.S., F.R. Hist. Soc.
1879	Yeats, John, LL.D., 7, *Beaufort-square, Chepstow.*
1886	Yerburgh, Robert Armstrong, M.P., 27, *Princes Gate, S.W.*
1888	*Yglesias, Miguel, 2, *Tokenhouse-buildings, E.C.*
1877	*Youll, John Gibson, *Jesmond-road, Newcastle-on-Tyne.*
1882	Young, E. M., 13, *Leadenhall-street, E.C.*

⁂ *The Executive Committee request that any inaccuracy in the foregoing list may be pointed out to the* ASSISTANT SECRETARY, *and that all changes of address may be notified to him, so that delay in forwarding communications and the publications of the Society may be avoided.*

HONORARY FELLOWS.

HIS ROYAL HIGHNESS THE PRINCE OF WALES, K.G.,

Honorary President.

Argentine Republic.

Year of Election.		
1890.	**Buenos Ayres..**	FRANCISCO LATZINA, Director General of Statistics; late Astronomer of the Observatory, and late Professor of Mathematics at the University, of Cordoba; Honorary Member of the National Department of Hygiene; Member of the International Statistical Institute, of the Geographical and Statistical Societies of Paris, of the Society of Commercial Geography of Paris, and of the Argentine Geographical Institute, &c.

Austria and Hungary.

1877.	**Vienna........**	DR. HUGO RITTER VON BRACHELLI, Aulic Councillor, Chief of the Statistical Department, Ministry of Commerce; President of the Permanent Commission for Commercial Values; Member of the Imperial and Royal Central Statistical Commission; Professor at the Technical High School in Vienna; Commander of the Russian Orders of St. Anna and St. Stanislaus, of the Luxembourg Order of the Oak-Crown; Officer of the Order of the Crown of Italy; Knight of the Order of the House of Saxe-Ernestine; Officer of the French Order of Public Instruction, &c.; Associate of the Statistical Society of Paris.
1890.	....	KARL THEODOR VON INAMA-STERNEGG, Doctor of Political Economy; President of the Imperial and Royal Central Statistical Commission; Professor at the University.
1874.	**Budapest......**	KARL KELETI, Ph.D., Ministerial and Aulic Councillor; Chief of the Royal Hungarian Statistical Bureau; Knight of the Austrian Order of Leopold; Officer of the Order of the Crown of Italy; Commander of the Russian Order of St. Stanislaus, and of the Portuguese Order of la Villa Viçosa; Member of various learned associations, &c.
1877.	**Vienna ....**	MAX WIRTH, Economist; formerly Director of the Federal Statistical Bureau of Switzerland.

Belgium.

Year of Election.

1879. **Brussels** ...... EUGÈNE JANSSENS, Doctor of Medicine; Chief Inspector of the Board of Health of the City of Brussels; President of the Federal Committee of Health of the Brussels District; Member of the Central Statistical Commission and of the Superior Council of Health; Knight of the Belgian Order of Leopold and of the French Legion of Honour; Officer of the Italian Order of SS. Maurice and Lazare; Civic Cross of the 1st Class; Officer of the Academy of France; Associate of the Statistical Society of Paris and of the International Statistical Institute; Member of the Royal Academy of Medicine, and of the Local Medical Commission.

China.

1890. **Peking** ...... SIR ROBERT HART, G.C.M.G., LL.D., Inspector-General of Imperial Maritime Customs, China.

Denmark.

1878. **Copenhagen** .. VIGAND ANDREAS FALBE - HANSEN, Member of the "Folkething;" Professor of the University of Copenhagen.

1852. ,, .. PETER ANTON SCHLEISNER, Doctor of Medicine, State Councillor; Knight of the Order of the "Dannebroge," and of the Swedish Order of the North Star; President of the Royal Danish Institute of Vaccination; Member of the Royal Danish General Board of Health.

France.

1880. **Paris**.......... JACQUES BERTILLON, Doctor of Medicine; Chief of the Statistical Works of the City of Paris; Member of the Superior Council of Statistics; of the Consultative Committee of Public Hygiene of France; and of the Statistical Society of Paris.

1856. ,, ... MAURICE BLOCK, Knight of the Legion of Honour, and of Orders of Sweden, Russia, Prussia, Bavaria, Austria and Hungary, Greece, Italy, Spain, and Portugal; Member of the Institute of France, of the Society of Political Economy of Paris, and of many Academies and Scientific Societies.

1879. ,, ... ARTHUR CHERVIN, Doctor of Medicine and Surgery; Director of the Paris Institute for Stammerers; Member of the Superior Council of Statistics and of the International Statistical Institute, &c.

1878. ,, ... MAXIMIN DELOCHE, Honorary Director of the General Statistics of France; Commander of the Legion of Honour; Officer of the Order of Public Instruction; Commander of the Austrian Order of Francis Joseph; Member of the Institute of France, and of several learned societies.

France—*Contd.*

Year of Election.		
1890.	**Paris**	ALFRED DE FOVILLE, Chief of the Statistical Bureau of the Ministry of Finance; Professor at the National Conservatoire of Arts and Trades (Chair of Industrial Economy and Statistics); Knight of the Legion of Honour; Laureate of the Institute of France; Past President of the Statistical Society of Paris; Member of the International. Statistical Institute and of the Superior Council of Statistics.
1870.	,,	DR. CLÉMENT JUGLAR, Past President of the Statistical Society of Paris; Vice-President of the Society of Political Economy of Paris.
1860.	,,	PIERRE ÉMILE LEVASSEUR, Professor at the College of France and at the Conservatoire of Arts and Trades; President of the Statistical Commission for Primary Instruction; Member of the Institute of France; Past President of the Statistical Society of Paris; Vice-President of the International Statistical Institute, of the Superior Council of Statisties, and of the Society of Political Economy, &c.
1860.	,,	MARIE LOUIS PIERRE FELIX ESQUIROU DE PARIEU, Senator; Grand Cross of the Legion of Honour; and Companion of several foreign orders; Member of the Institute of France.
1880.	,,	JEAN BAPTISTE LÉON SAY, Deputy; Ex-Minister of Finance; Member of the Institute of France; President of the Society of Political Economy of Paris; Past President of the Statistical Society of Paris, of the National Society of Horticulture, and of the National Society of Agriculture.
1887.	,,	DANIEL WILSON, Ex-Deputy; Ex-Under-Secretary of State; Past President of the Statistical Society of Paris.
1876.	,,	THE PRESIDENT (for the time being) OF THE STATISTICAL SOCIETY OF PARIS.

Germany.

1871.	**Stuttgart**	SIR HENRY PAGE-TURNER BARRON, Baronet, C.M.G., British Minister-Resident to the King of Wurttemberg.
1878.	**Berlin**	DR. KARL BECKER, "Geheimer Ober-Regierungsrath;" Director of the Imperial Statistical Office of the German Empire; Member of the Royal Central Statistical Commission of Prussia and Corresponding Member of the Central Statistical Commission of Belgium; Honorary Member of the Geographical and Statistical Society of Frankfort; and Member of the International Statistical Institute, &c.
1890.	,,	KARL JULIUS EMIL BLENCK, "Geheimer Ober-Regierungsrath;" Director of the Royal Statistical Bureau of Prussia, also Member of the Central Statistical Commission and of the Central Board of Control of the Survey of Prussia.

Germany—*Contd.*

Year of Election.		
1854.	**Dresden** ……	DR. ERNST ENGEL, "Geheimer Ober-Regierungsrath;" formerly Director of the Royal Statistical Bureau of Prussia; Member of several learned Societies.
1877.	**Munich** ……	DR. GEORG VON MAYR, Ex-Under Secretary of State in the Imperial Ministry for Alsace-Lorraine; formerly Director of the Royal Statistical Bureau of Bavaria; Associate of the Statistical Society of Paris.
1860.	,, ……	DR. GEORG KARL LEOPOLD SEUFFERT, formerly Chief Inspector and Director of the Royal Custom-House at Simbach; Knight of the Bavarian Order of St. Michael, 1st Class.
1876.	**Frankfort** ….	THE PRESIDENT (for the time being) OF THE GEOGRAPHICAL AND STATISTICAL SOCIETY OF FRANKFORT.

Italy.

Year of Election.		
1879.	**Rome** ……..	GEROLAMO BOCCARDO, Senator; Councillor of State; Doctor of Laws; late Professor at the University and at the Superior Naval School of Genoa; Grand Officer of the Order of SS. Maurice and Lazare; Knight of the Order of Civil Merit; Member of the Academy "dei Lincei," of the Academy of Naples, of the Institutes of Science of Milan, Venice, and Palermo; and of the Cobden Club, of the International Statistical Institute, of the Academy of Madrid, and of the Deputation of National History, &c.
1874.	,, ……..	LUIGI BODIO, Doctor of Laws; Professor at the University of Rome; Director-General of the Statistical Department of the State.
1880.	**Pavia** ……..	LUIGI COSSA, LL.D.; Professor of Political Economy; Commander of the Order of the Crown of Italy; Officer of the Order of SS. Maurice and Lazare; Member of the Superior Council of Public Instruction, and of the Cobden Club; Honorary Member of the American Economic Association; Ordinary Member of the Academy "dei Lincei" and of the Royal Institute of Sciences of Milan; Correspondent of the Royal Academies of Lisbon, Modena, Turin, Naples, &c.
1845.	**Venice** ……..	FRANCESCO FERRARA, Senator; Professor and Director of the Royal Superior School of Commerce at Venice; late Minister of Finance; Member of the Academy "dei Lincei."
1854.	**Turin**……….	GIOVANNI FLECHIA, Professor of Comparative history of the Classical and Neolatin Languages, and of Sanscrit, at the University of Turin; Knight of the Civil Order of Savoy; Commander of the Order of the Crown of Italy; Officer of the Order of SS. Maurice and Lazare; Fellow of the Academy of Sciences of Turin and of the Academy "dei Lincei."

Year of Election.

Italy—*Contd.*

1880. **Rome** .... ANGELO MESSEDAGLIA, Senator; Professor of the Royal University of Rome.

1868. „ .... THE MARQUIS ERMENEGILDO DEI CINQUE QUINTILI, Advocate; General Secretary of the Hospitals Commission of Rome.

Russia.

1873. **St. Petersburg** HIS EXCELLENCY MONS. PIERRE SEMENOFF (SEMENOW), Senator; Privy Councillor to His Imperial Majesty; President of the Imperial Statistical Council; President of the Imperial Geographical Society; Honorary Member of the Academy of Sciences in St. Petersbourg; Associate of the Statistical Society of Paris.

1890. „ HIS EXCELLENCY MONS. NICOLAS TROÏNITSKY, Former Governor; Privy Councillor; Director of the Central Statistical Committee of the Ministry of the Interior; Life Member of the Statistical Council; Member of the Imperial Geographical Society of Russia, of the International Statistical Institute, and of the Statistical Society of Paris.

Spain.

1845. **Madrid**........ HIS EXCELLENCY SEÑOR DON JOSÉ MAGÁZ Y JAYME, Advocate, and Member of the Council of State; Ex-Deputy of the Cortes; Ex-Senator; Ex-Director-General of Treasury; Ex-Under-Secretary of the Ministry of Finance; Grand Cross of the Order of Isabella Catolica; Commander of the Order of Carlos 3°.

Sweden and Norway.

1858. **Christiania**.... THORKIL HALVORSEN ASCHEHOUG, Doctor of Laws; Professor of Political Economy at the University of Christiania; Assessor Extraordinary of the Supreme Court of Norway; Commander of the First Class of the Swedish Orders of St. Olave and of the North Star; and of the Danish Order of the "Dannebroge;" Corresponding Member of the Institute of France; Member of the Institute of International Law, of the International Statistical Institute, and of the Academies of Christiania, Trondhjem and Upsala, also of the Royal Historical Society of Denmark.

1874. „ .. ANDERS NICOLAI KIÆR, Director of the Central Statistical Bureau of Norway; Associate of the Statistical Society of Paris.

1860. „ .. THOMAS MICHELL, Esq., C.B., Her Majesty's Consul-General for Norway.

Year of Election.

Sweden and Norway—*Contd.*

1890. **Stockholm** .... ELIS SIDENBLADH., Ph.D., Director in Chief of the Central Statistical Bureau of Sweden; President of the Royal Statistical Commission; Commander, Officer, and Knight of several Swedish and Foreign Orders; Member of the Royal Academies of Sciences and of Agriculture, at Stockholm; Honorary and Corresponding Member of several foreign learned Societies.

Switzerland.

1890. **Bern** .... LOUIS GUILLAUME, Doctor of Medicine; Director of the Federal Statistical Bureau; Secretary of the International Penitentiary Commission.

United States.

1873. **Albany, N.Y.** .. THE HON. WILLIAM BARNES, Lawyer; Ex-Superintendent of the Insurance Department, State of New York.

1881. **Washington** .. JOHN SHAW BILLINGS, Esq., A.M., M.D., LL.D., Edinburgh and Harvard; D.C L., Oxon; Surgeon, U.S. Army; Member of the National Academy of Sciences, &c.

1890. **New York** .... RICHMOND MAYO-SMITH, Esq., M.A., Ph.D., Professor of Political Economy and Social Science in Columbia College; Vice-President of the American Statistical Association; Member of the International Statistical Institute, and of the National Academy of Sciences.

1870. **Taunton, Mass.** THE HON. JOHN ELIOT SANFORD, Lawyer; Speaker of the House of Representatives; Insurance Commissioner; Chairman of the Board of Harbour and Land Commissioners.

1876. **Boston, Mass.** ..FRANCIS AMASA WALKER, Esq., Ph.D., LL.D., formerly Superintendent of the United States Census; President of the Massachusetts Institute of Technology; President of the American Statistical Association, and of the American Economic Association; Member of the National Academy of Sciences; Corresponding Member of the Central Statistical Commission of Belgium.

1870. **Norwich, Conn.** THE HON. DAVID AMES WELLS, D.C.L., LL.D., Economist. Late Special Commissioner of Revenue of the United States; Chairman of Commission for the Revision of Taxes of the State of New York; Lecturer on the Principles and Practice of Taxation, Harvard University, Cambridge, United States; Member of the Board of Arbitration of American Railways; Corresponding Member of the Institute of France; President of the American Social Science Association; and of the American Free Trade League; Chairman in 1883 of the Department of Finance of the American Social Science Association.

Year of Election.

United States—*Contd.*

1877. **Washington** .. EDWARD YOUNG, Esq., A.M., Ph.D., formerly Chief of the Bureau of Statistics, United States America.

India.

1886. **Calcutta and Simla** JAMES EDWARD O'CONOR, Esq., C.I.E., Assistant Secretary with the Supreme Government, India, Department of Finance and Commerce.

Dominion of Canada.

1876. **Toronto** ...... JOHN LANGTON, Esq., M.A., late Auditor-General.

New South Wales.

1876. **Sydney**........ EDWARD GRANT WARD, Esq., J.P., Registrar-General; Chairman of Board of Land Titles Commissioners.

New Zealand.

1876. **Wellington**.... SIR JAMES HECTOR, K.C.M.G., M.D., F.R.S.S., L. and E., F.G.S., &c. Director of the Geological Survey, of the Meteorological Department, and of the New Zealand Institute, &c.

Tasmania.

1876. **Hobart**........ EDWIN CRADOCK NOWELL, Esq., J.P., Clerk of Executive and Legislative Councils of Tasmania; late Government Statistician; Clerk to the Federal Council of Australasia in its first three Sessions.

Victoria.

1875. **Melbourne** .... HENRY HEYLYN HAYTER, Esq., C.M.G., Government Statist of Victoria; Officer of the French Order of Public Instruction; Chevalier of the Order of the Crown of Italy; Honorary Member of the Statistical and Social Inquiry Society of Ireland, of the Statistical Association of Tokio, of the Royal Society of Tasmania, and of the Intercolonial Medical Congress of Australasia; Honorary Corresponding Member of the Society of Arts, London, of the Statistical Society of Manchester, of the American Statistical Association, Boston, of the Commercio-Geographical Society of Berlin, of the Geographical Society of Bremen, and of the Royal Society of South Australia; Honorary Foreign Member of the Statistical Society of Paris; Fellow and Honorary Corresponding Secretary for Victoria of the Royal Colonial Institute; Member of the International Statistical Institute.

Victoria—*Contd.*

Year of Election.		
1858.	**Melbourne**	WILLIAM HENRY ARCHER, Esq., K.S.G., F.I.A., F.L.S., &c., Barrister-at-Law.

Great Britain and Ireland.

1876.	**Manchester** ..	THE PRESIDENT (for the time being) OF THE MANCHESTER STATISTICAL SOCIETY.
1876.	**Dublin**	THE PRESIDENT (for the time being) OF THE STATISTICAL AND SOCIAL INQUIRY SOCIETY OF IRELAND.

NOTE.—The Executive Committee request that any inaccuracies in the foregoing List of HONORARY FELLOWS may be pointed out, and that all changes of address may be notified to the Secretary, so that delay in forwarding communications and the publications of the Society may be avoided.

ROYAL STATISTICAL SOCIETY.

Copy of Charter.

Victoria, by the Grace of God of the United Kingdom of Great Britain and Ireland Queen, Defender of the Faith.

To all to whom these Presents shall come, Greeting:—

Whereas Our Right trusty and entirely beloved cousin, Henry, Third Marquess of Lansdowne, Knight of the Most Noble Order of the Garter, Charles Babbage, Fellow of the Royal Society, John Elliott Drinkwater, Master of Arts, Henry Hallam, Fellow of the Royal Society, the Reverend Richard Jones, Master of Arts, and others of Our loving subjects, did, in the year One thousand eight hundred and thirty-four, establish a Society to collect, arrange, digest and publish facts, illustrating the condition and prospects of society in its material, social, and moral relations; these facts being for the most part arranged in tabular forms and in accordance with the principles of the numerical method, and the same Society is now called or known by the name of "The "Statistical Society."

And Whereas it has been represented to Us that the same Society has, since its establishment, sedulously pursued such its proposed objects, and by its publications (including those of its transactions), and by promoting the discussion of legislative and other public measures from the statistical point of view, has greatly contributed to the progress of statistical and economical science.

And Whereas distinguished individuals in foreign countries, as well as many eminent British subjects, have availed themselves of the facilities offered by the same Society for communicating important information largely extending statistical knowledge; and the general interest now felt in Statistics has been greatly promoted and fostered by this Society.

And Whereas the same Society has, in aid of its objects, collected a large and valuable library of scientific works and charts, to which fresh accessions are constantly made; and the said Society has hitherto been supported by annual and other subscriptions and contributions to its funds, and has lately acquired leasehold premises in which the business of the said Society is carried on.

And Whereas in order to secure the property of the said Society, to extend its operations, and to give it its due position among the Scientific Institutions of Our kingdom, We have been besought to grant to Sir Rawson William Rawson, Knight Commander of the Most Distinguished Order of St. Michael and St. George, and Companion of the Most Honourable Order of the Bath, and to those who now are Members of the said Society, or who shall from time to time be elected Fellows of the Royal Statistical Society hereby incorporated, Our Royal Charter of Incorporation for the purposes aforesaid.

1. **Now Know Ye** that We, being desirous of encouraging a design so laudable and salutary, of Our especial grace, certain knowledge and mere motion, have willed, granted, and declared and Do by these Presents, for Us, Our heirs and successors, will, grant, and declare that the said Sir Rawson William Rawson, Knight Commander of the Most Distinguished Order of St. Michael and St. George, and Companion of the Most Honourable Order of the Bath, and such other of Our loving subjects as now are Members of the said Society, or shall from time to time be elected Fellows of "The Royal Statistical Society" hereby incorporated according to such regulations or bye laws as shall be hereafter framed or enacted, and their successors, shall for ever hereafter be by virtue of these presents one body politic and corporate, by the name of "**The Royal Statistical Society,**" and for the purposes aforesaid, and by the name aforesaid, shall have perpetual succession and a common seal, with full power and authority to alter, vary, break, and renew the same at their discretion, and by the same name to sue and be sued, implead and be impleaded, answer and be answered, unto and in every Court of Us, Our heirs and successors.

2. **The** Royal Statistical Society, in this Charter hereinafter called "The Society," may, notwithstanding the statutes of mortmain, take, purchase, hold and enjoy to them and their successors a hall, or house, and any such messuages or hereditaments of any tenure as may be necessary, for carrying out the purposes of the Society, but so that the yearly value thereof to be computed at the rack rent which might be gotten for the same at the time of the purchase or other acquisition, and including the site of the said hall, or house, do not exceed in the whole the sum of Two thousand pounds.

3. **There** shall be a Council of the Society, and the said Council and General Meetings of the Fellows to be held in accordance with this Our Charter shall, subject to the provisions of this Our Charter, have the entire management and direction of the concerns of the Society.

4. **There** shall be a President, Vice-Presidents, a Treasurer or Treasurers, and a Secretary or Secretaries of the Society. The Council shall consist of the President, Vice-Presidents, and not

less than twenty Councillors; and the Treasurer or Treasurers and the Secretary or Secretaries if honorary.

5. **The** several persons who were elected to be the President, Vice-Presidents, and Members of the Council of the Statistical Society at the Annual Meeting held in the month of June, One thousand eight hundred and eighty-six, shall form the first Council of the Society, and shall continue in office until the first Election of officers is made under these presents as hereinafter provided.

6. **General** Meetings of the Fellows of the Society may be held from time to time, and at least one General Meeting shall be held in each year. Every General Meeting may be adjourned, subject to the provisions of the Bye Laws. The following business may be transacted by a General Meeting, viz.:—

(*a.*) The Election of the President, Vice-Presidents, Treasurer or Treasurers, Secretary or Secretaries, and other Members of the Council of the Society.

(*b.*) The making, repeal, or amendment of Bye Laws.

(*c.*) The passing of any proper resolution respecting the affairs of the Society.

7. **Bye Laws** of the Society may be made for the following purposes, and subject to the following conditions, viz.:—

(*a.*) For prescribing the qualification and condition of tenure of office of the President; the number, qualifications, functions, and conditions of tenure of office of the Vice-Presidents, Treasurers, Secretaries, and Members of Council, and Officers of the Society; for making regulations with respect to General Meetings and Meetings of the Council and proceedings thereat, and for the election of any persons to be Honorary Fellows or Associates of the Society, and defining their privileges (but such persons, if elected, shall not be Members of the Corporation), and for making regulations respecting the making, repeal and amendment of Bye Laws, and generally for the government of the Society and the management of its property and affairs.

(*b.*) The first Bye Laws shall be made at the first General Meeting to be held under these presents, and shall (amongst other things) prescribe the time for holding the first election of officers under these presents.

8. **The** General Meetings and adjourned General Meetings of the Society shall take place (subject to the rules or bye laws of the Society, and to any power of convening or demanding a

Special General Meeting thereby given) at such times and places as may be fixed by the Council.

9. **The** existing rules of the Statistical Society, so far as not inconsistent with these presents, shall be in force as the Bye Laws of the Society until the first Bye Laws to be made under these presents shall come into operation.

10. **Subject** to these presents and the Bye Laws of the Society for the time being, the Council shall have the sole management of the income, funds, and property of the Society, and may manage and superintend all other affairs of the Society, and appoint and dismiss at their pleasure all salaried and other officers, attendants, and servants as they may think fit, and may do all such things as shall appear to them necessary or expedient for giving effect to the objects of the Society.

11. **The** Council shall once in every year present to a General Meeting a report of the proceedings of the Society, together with a statement of the receipts and expenditure, and of the financial position of the Society, and every Fellow of the Society may, at reasonable times to be fixed by the Council, examine the accounts of the Society.

12. **The** Council may, with the approval of a General Meeting, from time to time appoint fit persons to be Trustees of any part of the real or personal property of the Society, and may make or direct any transfer of such property so placed in trust necessary for the purposes of the trust, or may, at their discretion, take in the corporate name of the Society conveyances or transfers of any property capable of being held in that name. Provided that no sale, mortgage, incumbrance, or other disposition of any hereditaments belonging to the Society shall be made unless with the approval of a General Meeting.

13. **No** Rule, Bye Law, Resolution, or other proceeding shall be made or had by the Society, or any meeting thereof, or by the Council, contrary to the general scope or true intent and meaning of this Our Charter, or the laws or statutes of Our Realm, and anything done contrary to this present clause shall be void.

In Witness whereof We have caused these Our Letters to be made Patent.

Witness Ourself, at Westminster, the thirty-first day of January, in the fiftieth year of Our Reign.

By Warrant under the Queen's Sign Manual,

L. S.

MUIR MACKENZIE.

ROYAL STATISTICAL SOCIETY.

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RULES AND BYE-LAWS OF THE ROYAL STATISTICAL SOCIETY.

Objects of the Society.

1. The objects of the Royal Statistical Society are to collect, arrange, digest and publish facts, illustrating the condition and prospects of society in its material, social and moral relations; these facts being for the most part arranged in tabular forms and in accordance with the principles of the numerical method.

The Society collects new materials, condenses, arranges, and publishes those already existing, whether unpublished or published in diffuse and expensive forms in the English or in any foreign language, and promotes the discussion of legislative and other public measures from the statistical point of view. These discussions form portions of the published Transactions of the Society.

Constitution of the Society.

2. The Society consists of Fellows and Honorary Fellows, elected in the manner hereinafter described.

Number of Fellows and Honorary Fellows.

3. The number of Fellows is unlimited. Foreigners or British subjects of distinction residing out of the United Kingdom may be admitted as Honorary Fellows, of whom the number shall not be more than seventy at any one time.

Proposal of Fellows.

4. Every Candidate for admission as a Fellow of the Society shall be proposed by two or more Fellows, who shall certify from their personal knowledge of him or of his works, that he is a fit person to be admitted a Fellow of the Society. Every such certificate having been read and approved of at a Meeting of the Council, shall be suspended in the office of the Society until the following Ordinary Meeting, at which the vote shall be taken.

Election of Fellows.

5. In the election of Fellows, the votes shall be taken by ballot. No person shall be admitted unless at least sixteen Fellows vote, and unless he have in his favour three-fourths of the Fellows voting.

Admission of Fellows.

6. Every Fellow elect is required to take the earliest opportunity of presenting himself for admission at an Ordinary Meeting of the Society.

The manner of admission shall be thus:—

Immediately after the reading of the minutes, the Fellow elect, having first paid his subscription for the current year or his composition, shall sign the obligation contained in the Fellowship-book, to the effect following:—

" We, who have underwritten our " names, do hereby undertake, each for " himself, that we will endeavour to " further the good of the Royal Statis- " tical Society for improving Statistical " Knowledge, and the ends for which " the same has been founded; that we " will be present at the Meetings of the " Society as often as conveniently we " can, and that we will keep and fulfil " the Bye-laws and Orders of this " Society: provided that whensoever " any one of us shall make known, by " writing under his hand, to the Secre- " taries for the time being, that he " desires to withdraw from the Society, " he shall be free thenceforward from " this obligation."

Whereon the President, taking him by the hand, shall say,—'By the " authority, and in the name of the " Royal Statistical Society, I do admit " you a Fellow thereof."

Upon their admission Fellows shall have the right of attaching to their names the letters F.S.S., but not in connection with any trading or business advertisement other than the publication of any book or literary notice.

Admission of Honorary Fellows.

7. There shall be Two Meetings of the Society in the year, on such days as shall be hereafter fixed by the Council, at which Honorary Fellows may be elected.

No Honorary Fellow can be recommended for election but by the Council. At any Meeting of the Council any Member thereof may propose a Foreigner or British subject of distinction residing out of the United Kingdom, delivering at the same time a written statement of the qualifications of, offices held by, and published works of, the person proposed; and ten days' notice at least shall be given to every Member of the Council, of the day on which the Council will vote by ballot on the question whether they will recommend to the Society the election of the person proposed. No such recommendation to the Society shall be adopted unless at least three-fourths of the votes are in favour thereof.

Notice of the recommendation shall be given from the chair at the Meeting of the Society next preceding that at which the vote shall be taken thereon. No person shall be elected an Honorary Fellow unless sixteen Fellows vote and three-fourths of the Fellows voting be in his favour.

The Council shall have power to elect as Honorary Fellows, the Presidents for the time being of the Statistical Societies of Dublin, Manchester, and Paris, and the President of any other Statistical Society at home or abroad.

Payments by Fellows.

8. Every Fellow of the Society shall pay a yearly subscription of Two Guineas, or may at any time compound for his future yearly payments by paying at once the sum of Twenty Guineas.*

Defaulters.—Withdrawal of Fellows.

9. All yearly payments are due in advance on the 1st of January, and if any Fellow of the Society have not paid his subscription before the 1st of July, he shall be applied to in writing by the Secretaries, and if the same be not paid before the 1st of January of the second year, a written application shall again be made by the Secretaries, and the Fellow in arrear shall cease to receive the Society's publications, and shall not be entitled to any of the privileges of the Society until such arrears are paid; and if the subscription be not discharged before the 1st of February of the second year, the name of the Fellow thus in arrear shall be exhibited on a card suspended in the office of the Society; and if, at the next Annual General Meeting, the amount still remain unpaid, the defaulter shall, unless otherwise authorised by the Council, be announced to be no longer a Fellow of the Society, the reason for the same being at the same time assigned. No Fellow of the Society can withdraw his name from the Society's books, unless all arrears be paid; and no resignation will be deemed valid unless a written notice thereof be communicated to the Secretaries. No Fellow shall be entitled to vote at any Meeting of the Society until he shall have paid his subscription for the current year.

Expulsion of Fellows.

10. If any Fellow of the Society, or any Honorary Fellow, shall so demean himself that it would be for the dishonour of the Society that he longer continue to be a Fellow or Honorary Fellow thereof, the Council shall take the matter into consideration; and if the majority of the Members of the Council present at some Meeting (of which and of the matter in hand such Fellow or Honorary Fellow, and every Member of the Council, shall have due notice) shall decide by ballot to recommend that such Fellow or Honorary Fellow be expelled from the Society, the President shall at its next Ordinary Meeting announce to the Society the recommendation of the Council, and at the following Meeting the question shall be decided by ballot, and if at least three-fourths of the number voting are in favour of the expulsion, the President shall forthwith cancel the name in the Fellowship-book, and shall say,—

"By the authority and in the name "of the Royal Statistical Society, I do

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* Cheques should be made payable to "The Royal Statistical Society," and crossed "Messrs. "Drummond and Co."

" declare that A. B. (naming him) is no " longer a Fellow (or Honorary Fellow) " thereof."

And such Fellow or Honorary Fellow shall thereupon cease to be of the Society.

Trustees.

11. The property of the Society may be vested in three Trustees, chosen by the Fellows. The Trustees are eligible to any other offices in the Society.

President, Council, and Officers.

12. The Council shall consist of a President and thirty Members, together with the Honorary Vice-Presidents.

From the Council shall be chosen four Vice-Presidents, a Treasurer, the Honorary Secretaries, and a Foreign Secretary, who may be one of the Honorary Secretaries. The former Presidents who are continuing Fellows of the Society shall be Honorary Vice-Presidents. Any five of the Council shall be a quorum.

Election of President and Officers.

13. The President, Members of Council, Treasurer, and Honorary and Foreign Secretaries shall be chosen annually by the Fellows at the Annual General Meeting.

The Vice-Presidents shall be chosen annually from the Council by the President.

The President shall not be eligible for the office more than two years in succession.

Six Fellows, at least, who were not of the Council of the previous year, shall be annually elected; and of the Members retiring three at least shall be those who have served longest continuously on the Council, unless they hold office as Treasurer or Honorary or Foreign Secretary.

Nomination of President, Council, and Officers.

14. The Council shall, previously to the Annual General Meeting, nominate, by ballot, the Fellows whom they recommend to be the next President and Council of the Society. They shall also recommend for election a Treasurer and the Secretaries (in accordance with Rule 12). Notice shall be sent to every Fellow whose residence is known to be within the limits of the metropolitan post, at least a fortnight before the Annual General Meeting, of the names of Fellows recommended by the Council.

Extraordinary Vacancies.

15. On any extraordinary vacancy occurring of the Office of President, or other Officer of the Society, the Honorary Secretaries shall summon the Council with as little delay as possible, and a majority of the Council, thereupon meeting in their usual place, shall, by ballot, and by a majority of those present, choose a new President, or other Officer of the Society, to be so until the next Annual General Meeting.

Committees.

16. The Council shall have power to appoint Committees of Fellows and also an Executive Committee of their own body. The Committees shall report their proceedings to the Council. No report shall be communicated to the Society except by the Council.

Auditors.

17. At the first Ordinary Meeting of each year, the Fellows shall choose two Fellows, not being Members of the Council, as Auditors, who, with one of the Council, chosen by the Council, shall audit the Treasurer's accounts for the past year, and report thereon to the Society, which report shall be presented at the Ordinary Meeting in February. The Auditors shall be empowered to examine into the particulars of all expenditure of the funds of the Society, and may report their opinion upon any part of it.

Meetings Ordinary and General.

18. The Ordinary Meetings of the Society shall be held monthly, or oftener, during the Session, which shall be from the 1st of November to the 1st of July in each year, both inclusive, on such days and at such hours as the Council shall declare. The Annual General Meeting shall be held on such day in the month of June of each year as shall be appointed by the Council for the time being.

Business of Ordinary Meetings.

19. The business of the Ordinary Meetings shall be to elect and admit Fellows, to read and hear reports, letters, and papers on subjects interesting to the Society. Nothing relating to the bye-laws or management of the Society shall be discussed at the Ordinary Meetings, except that the Auditors' Report shall be presented at the Ordinary Meeting in February, and that the Minutes of the Annual General Meeting, and of every Special General Meeting, shall be submitted for confirmation at the next Ordinary Meeting after the day of such Annual or Special General Meeting. Strangers may be introduced to the Ordinary Meetings, by any Fellow, with the leave of the President, Vice-President, or other Fellow presiding at the Meeting.

Business of Annual General Meeting.

20. The business of the Annual General Meeting shall be to elect the Officers of the Society, and to discuss questions on its bye-laws and management. No Fellow or Honorary Fellow shall be proposed at the Annual General Meeting. No Fellow shall propose any alteration of the rules or bye-laws of the Society at the Annual General Meeting, unless after three weeks' notice thereof given in writing to the Council, but amendments to any motion may be brought forward without notice, so that they relate to the same subject as the motion. The Council shall give fourteen days' notice to every Fellow of all questions of which such notice shall have been given to them.

Special General Meetings.

21. The Council may, at any time, call a Special General Meeting of the Society when it appears to them necessary. Any twenty Fellows may require a Special General Meeting to be called, by notice in writing signed by them, delivered to one of the Secretaries, specifying the questions to be moved. The Council shall, within one week of such notice, appoint a day for such Special General Meeting, and shall give at least one week's notice of every Special General Meeting, and of the questions to be moved, to every Fellow within the limits of the metropolitan post, whose residence is known. No business shall be brought forward at any Special General Meeting other than that specified in the notice convening the same.

Duties of the President.

22. The President shall preside at all Meetings of the Society, Council, and Committees which he shall attend, and in case of an equality of votes, shall have a second or casting vote. He shall sign all diplomas of admission of Honorary Fellows. He shall admit and expel Fellows and Honorary Fellows, according to the bye-laws of the Society.

Duties of the Treasurer.

23. The Treasurer shall receive all moneys due to, and pay all moneys owing by, the Society, and shall keep an account of his receipts and payments. No sum exceeding Ten Pounds shall be paid but by order of the Council, excepting always any lawful demand for rates or taxes. The Treasurer shall invest the moneys of the Society in such manner as the Council shall from time to time direct.

Duties of the Honorary Secretaries.

24. The Honorary Secretaries shall, under the control of the Council, conduct the correspondence of the Society; they or one of them shall attend all Meetings of the Society and Council, and shall duly record the Minutes of the Proceedings. They shall issue the requisite notices, and read such papers to the Society as the Council may direct.

Powers of the Vice-Presidents.

25. A Vice-President, whether Honorary or nominated, in the chair, shall act with the power of the President in presiding and voting at any Meeting of the Society or Council, and in admitting Fellows; but no Vice-President shall be empowered to sign diplomas of admission of Honorary Fellows, or to expel Fellows or Honorary Fellows. In the absence of the President and Vice-Presidents, any Member of Council may be called upon by the Fellows then present, to preside at an Ordinary or Council Meeting, with the same power as a Vice-President.

Powers of the Council.

26. The Council shall have control over the papers and funds of the Society, and may, as they shall see fit, direct the publication of papers and the expenditure of the funds, in accordance with the provisions of the Charter.

27. The Council shall be empowered at any time to frame Regulations not inconsistent with these bye-laws, which shall be and remain in force until the next Annual General Meeting, at which they shall be either affirmed or annulled; but no Council shall have power to renew Regulations which have once been disapproved at an Annual General Meeting.

28. The Council shall have the custody of the Common Seal. The Common Seal shall not be affixed to any instrument, deed, or other document, except by order of the Council and in the presence of at least two Members of the Council, and in accordance with such other regulations as the Council shall from time to time prescribe. The fact of the seal having been so affixed shall be entered on the minutes of the Council.

29. No Dividend, Gift, Division, or Bonus in money shall be made by the Society, unto or between any of the Fellows or Members, except as hereinafter provided.

30. The Council shall publish a Journal of the Transactions of the Society, and such other Statistical Publications as they may determine upon, and may from time to time pay such sums to Editors and their assistants, whether Fellows of the Society or not, as may be deemed advisable.

31. All communications to the Society are the property of the Society, unless the Council allow the right of property to be specially reserved by the Contributors.

REGULATIONS OF THE LIBRARY.

1. The Library and the Reading Room are open daily for the use of Fellows from 10 a.m. till 5 p.m., except on Saturdays, when they are closed at 2 p.m. The Society's Rooms are entirely closed during the month of September, but Books required by Fellows can be obtained from the Library on application.

2. Fellows of the Society are permitted to take out Books on making personal application, or by letter addressed to the Librarian.

3. Fellows are not to keep any books longer than one month. Any Fellow detaining a book for more than a month shall not be permitted to take another from the Library until the book detained shall have been returned.

4. Scientific Journals and Periodicals are not circulated until the volumes are completed and bound.

5. Cyclopædias and works of reference are not circulated, but may be lent on the written order of an Honorary Secretary for a period not exceeding *seven* days. The Assistant Secretary or Librarian is allowed at his discretion to lend works of reference for a period not exceeding *three* days, reporting at the same time to the Honorary Secretaries. If works so lent be not returned within the specified time, the borrower shall incur a fine of one shilling per day per volume for each day they are detained beyond the time specified.

6. Any Fellow damaging or losing a book, either replaces the work, or pays a fine equivalent to its value.

7. Books taken from the shelves for reference, are *not* to be replaced, but must be laid on the Library table.

8. The Librarian shall report to the Council any infringement of these regulations, and lay upon the table at each regular Meeting (*a*) a List of any "Works of Reference" that may have been borrowed, and (*b*) a List of Books that have been out more than a month.

DONORS TO THE LIBRARY.

During the Year 1891.

(a) **Foreign Countries.**

Argentine Republic—
- General Statistical Bureau.
- National Health Department.
- Buenos Ayres, Provincial Statistical Bureau.
- „ Municipal Statistical Bureau.
- Argentine Geographical Institute.

Austria and Hungary—
- Central Statistical Commission.
- Statistical Department of the Ministry of Commerce.
- Hungarian Statistical Bureau.
- Budapest Statistical Bureau.
- Prague Statistical Bureau.

Belgium—
- Bureau of General Statistics.
- Administration of Mines.
- Brussels Bureau of Hygiene.
- Bruges, The Burgomaster of.
- Royal Academy of Sciences.

Bulgaria. Statistical Bureau.

Chili. Department of Commercial Statistics.

China—
- Imperial Maritime Customs.
- Royal Asiatic Society's Branch.

Denmark—
- Royal Statistical Bureau.
- Political Economy Society.

Egypt—
- Director-General of Customs.
- Egyptian Institute, Cairo.

France—
- Ministry of Agriculture.
- „ Commerce.
- „ Finance.
- „ Justice.
- „ Public Works.
- Paris Statistical Bureau.
- Economiste Français, The Editor, Paris.
- Monde Economique, The Editor, Paris.
- Rentier, Le, The Editor, Paris.
- Revue Bibliographique Universelle, The Editor, Paris.
- Revue d'Economie Politique, The Editor, Paris.
- Revue Géographique Internationale, The Editor, Paris.
- Statistical Society of Paris.
- Free School of Political Science.
- Suez Canal Company, Paris.

Germany—
- Imperial Statistical Bureau.
- German Consul-General, London.
- Prussian Royal Statistical Bureau.
- Saxony Royal Statistical Bureau.
- Berlin Statistical Bureau.
- Frankfort Chamber of Commerce.
- „ Statistical Bureau.
- Hamburg Chamber of Commerce.
- „ Statistical Bureau.
- Archiv für Soziale Gesetzgebung, &c., The Editor. Tubingen.
- Geographical and Statistical Society of Frankfort.
- Railway Association, Berlin.

During the Year 1891—*Contd.*

(a) **Foreign Countries**—*Contd.*

Greece. Statistical Bureau.

Guatemala. Statistical Bureau.

Italy –
- Director-General, Statistical Department of the State.
- Director-General of Agriculture.
- Director of Public Health.
- Economista, The Editor, Florence.
- Giornale degli Economisti, The Editor, Bologna.

Japan –
- Bureau of General Statistics.
- Central Sanitary Bureau.
- Imperial University.
- Tokyo Statistical Society.
- „ The Prefect of.

Mexico. Statistical Bureau.

Netherlands—
- Department of the Interior.
- Director of Post Office Savings Banks.
- Legation, London.
- Statistical Institute.

Paraguay. General Statistical Bureau.

Roumania. Central Statistical Bureau.

Russia—
- Central Statistical Committee.
- Agricultural Department.
- Customs Statistical Bureau.
- Department of Assessed Taxes.
- Ministry of Finance.
- L'Economiste Russe, The Editor.

Spain—
- Board of Customs.
- Chancellor of Exchequer, Madrid.

Spain—*Contd.*
- Director-General of Indirect Taxation.
- Geographical & Stat. Institute.
- Geographical Society of Madrid.

Sweden. Central Statistical Bureau.

Norway. Central Statistical Bureau.

Switzerland—
- Federal Statistical Bureau.
- „ Department of Customs.
- Aargau Statistical Bureau.
- Geneva Public Library.
- Statistical Society.
- Swiss Union of Commerce and Industry.

United States—
- Bureau of American Republics.
- Bureau of Education.
- Commissioner of Labor.
- Comptroller of the Currency.
- Department of Agriculture.
- Director of the Mint.
- Marine Hospital Service.
- Naval Observatory.
- Secretary of the Treasury.
- Superintendent of Census.
- Surgeon-General, U. States Army.
- Statistical Bureau, Treasury.

- *Connecticut* State Board of Health.
- *Illinois* Bureau of Labor Statistics.
- *Massachusetts*—
  - Board of Health, Lunacy, &c.
  - Bureau of Statistics of Labor.
- *Michigan* State Board of Health.
- *New York* State Library.
  - „ Museum.
  - „ Bureau of Labor.
- *Rhode Island.* Registrar, Providence.
- *Wisconsin.* State Board of Health.

During the Year 1891—*Contd.*

(a) **Foreign Countries**—*Contd.*

United States—Contd.
Bankers' Magazine, New York.
Bradstreet's Journal, New York.
Commercial and Financial Chronicle of New York.
Forum, The, The Editor.
Political Science Quarterly, Columbia College.
Quarterly Journal of Economics, The Editor, Boston.
Academy of Arts and Sciences, Boston.
Academy of Political and Social Science.
Actuarial Society of America.

United States—Contd.
Economic Association, Baltimore.
Geographical Society, New York.
Philosophical Soc. of Philadelphia.
Statistical Association, Boston.
Astor Library, New York.
Columbia College, New York.
Cooper Union, New York.
Franklin Institute, Philadelphia.
Smithsonian Institution.
Yale University.

Uruguay—
Bureau of General Statistics.

Venezuela. Statistical Bureau.

(b) **India, and Colonial Possessions.**

India, British—
Census Commissioner.
Finance and Commerce Depart.
Lieutenant-Governor of Bengal.
Indian Engineering, The Editor.
Asiatic Society of Bengal.
Bombay Branch of the Royal Asiatic Society.

Canada—
Department of Agriculture.
The High Commissioner, London.
Manitoba Agricultural Depart.
Insurance and Finance Chronicle. The Editor, Montreal.
Canadian Institute.
Royal Society of Canada.

Cape of Good Hope—
Colonial Secretary.
Director of the Census.
Superintendent-General of Education.
Port Elizabeth Chamber of Commerce.

Jamaica. Registrar-General of.

Mauritius—
H.E. The Governor of.
The Colonial Secretary.

Natal. Durban Chamber of Commerce.

New South Wales—
Agent-General, London.
Government Statist, Sydney.
Director of Agriculture.
Registrar-General, Sydney.

New Zealand—
Registrar-General.
Department of Mines.
Agent-General, London.
Colonial Museum, Wellington.
Wellington Harbour Board.

Queensland. Registrar-General of.

South Australia —
The Chief Secretary.
The Government Statist.
Public Library, &c., Adelaide.

During the Year 1891—*Contd.*

(b) **India and Colonial Possessions**—*Contd.*

Straits Settlements. The Government Secretary, Perak.

Tasmania—
- Government Statistician, Hobart.
- Royal Society of Tasmania.

Trinidad—
- Registrar-General.
- Government Statist.

Victoria—
- Department of Mines.
- Agent-General, London.
- Government Statist.
- Royal Society of Victoria.
- Public Library, &c., Melbourne.

Windward Islands. H.E. the Governor.

(c) **United Kingdom and its several Divisions.**

United Kingdom—
- Admiralty Medical Department.
- Board of Agriculture.
- Army Medical Department.
- Board of Trade.
- British Museum.
- Customs, H.M. Commissioners of.
- Foreign Office.
- Home Office.
- India Office.
- Local Government Board.
- Metropolitan Asylums Board.
  - „ Fire Brigade.
  - „ Police.
  - „ School Board.
- Royal Mint.
- Woods, Forests, &c., H.M.

England—
- Registrar-General of England.
- London County Council.
- London. Board of Works for Wandsworth District.
- Birmingham Medical Officer of Health.
  - „ Library.
  - „ The Town Clerk of.
- Liverpool Free Public Library.
- Manchester Free Public Library.

Ireland—
- Registrar-General of Ireland.
- Dublin Commissioner of Police.

Scotland—
- Registrar-General of Scotland.
- Edinburgh City Chamberlain.

(d) **Authors, &c.**

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Bell and Sons, Messrs. G., London.
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During the Year 1891—*Contd.*

(d) **Authors**, &c.—*Contd.*

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Mensi, Dr. Franz v., Vienna.
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Morpurgo, Signor E., Italy.
Moss & Co., Messrs., Alexandria.

During the Year 1891—*Contd.*

(d) **Authors**, &c.—*Contd.*

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Tupper, Sir Charles, Bart., London.
Urmson, Elliott, & Co., Liverpool.
Vannacque, M., Paris.
Vesselovsky, H. E. A. de.
Villanova, Prof. J., Madrid.
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Walras, M. Léon, Switzerland.
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Winter, Alexander, Esq., London.
Woolston & Beeton, London.
Wright, Hon. C. D., Boston, U.S.A.
Yakchitch, M. V., Belgrade.

(e) **Societies, &c. (British).**

Accountants & Auditors, Society of.
Actuaries, Institute of.
Agriculture, Central Chamber of.
Anthropological Institute.
Arts, Society of.
Bankers, Institute of.
British Association.
" Economic Association.
" Iron Trade Association.
Chartered Accountants, Institute of.
Civil Engineers Institution of.
Cobden Club.
Decimal Association.
East India Association.
Friendly Society of Ironfounders.
Glasgow Philosophical Society.
Howard Association.
International Statistical Institute
Liverpool Lit. and Phil. Society.
London Chamber of Commerce.
" Hospital.
" Library

During the Year 1891—*Contd.*

(e) **Societies, &c. (British)**—*Contd.*

Manchester Literary and Philosophical Society.
„ Statistical Society.
Mechanical Engineers, Institution of.
Middlesex Hospital.
Mitchell Library, Glasgow.
Peabody Donation Fund.
Peace Society.
Royal Agricultural Society.
„ Asiatic Society.
„ College of Physicians.
„ College of Surgeons.
„ „ in Ireland.
„ Colonial Institute.
„ Geographical Society.
„ Institution of Great Britain.
Royal Irish Academy.
„ Med. and Chirurgical Society.
„ Nat. Life Boat Institution.
„ Society, Edinburgh.
„ Society, London.
„ United Service Institution.
St. Bartholomew's Hospital.
Sanitary Institute of Great Britain.
Shipwrecked Mariners' Benevolent Society.
Society for Propagation of the Gospel in Foreign Parts.
Statistical and Social Inquiry Society of Ireland.
Surveyors' Institution.
University College, London.

(f) **Periodicals, &c. (British).** *The Editors of*—

Athenæum, The, London.
Bankers' Magazine, The, London.
British Trade Journal, The, London.
Building Societies, &c., Gazette, The.
Commercial World, The, London.
Darkest Russia, London.
Economic Review, The, London.
Economist, The, London.
Fireman, The, London.
Insurance and Finance Leader, The.
„ Post, The, London.
Insurance Record, The, London.
Investors' Monthly Manual, The.
Iron and Coal Trades' Review, The
Machinery Market, The, London.
Nature, London.
Policy-Holder, The, Manchester.
Railway Press, The, London.
Review, The, London.
Sanitary Record, The, London.
Shipping World, The, London.
Statist, The, London.

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